"A STUDY TO ASSESS THE EFFECTIVENESS OF AMLA JUICE IN REDUCING BLOOD SUGAR AMONG PATIENTS WITH TYPE II DIABETES IN A SELECTED AREA AT NAMAKKAL DISTRICT"

By
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Dissertation submitted to

The Tamil Nadu Dr. M.G.R. Medical University, Chennai,

In partial fulfillment
Of the requirements for the degree of
Master of Science in
Medical-Surgical Nursing
(Sub Specialty-Cardio Vascular and thoracic Nursing)
under the guidance of
Mrs. M.Latha., M. Sc (N),MBA., PhD.,

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VIVA VOCE:

1. INTERNAL EXAMINATION : ----------
2. EXTERNAL EXAMINATION : ----------

ENDORSEMENT BY HEAD OF THE INSTITUTION

This is to certify that the dissertation entitled **"A study to assess the effectiveness of alma juice in reducing blood sugar among patients with type II diabetes in selected area at Namakkal district."** is a bonafide research work done by **Mrs.Sangeetha.M** under the guidance of **Prof. Mrs. M.Latha, M.Sc(N).,Ph.D., Principal** and head of the department of medical surgical nursing of Anbu college of Nursing.

Principal

THE STUDY IS DEDICATED TO ALMIGHTY AND TO MY FAMILY

ACKNOWLEDGEMENT

I expressed my utmost gratefulness to an almighty for his blessings throughout this study.

I wonder if I've ever thanked you

For the simple things…

The laughter, smiles and quiet times we've shared?

Gratitude can never been expressed in words but this is only a deep perception, which makes the words to flow from ones inner heart. I am proud to acknowledge the love, support, co-operation and prayers of my parents , father and mother-in-laws, my lovable sisters , my sweet daughter and son for their faith, vision on me and their guidance and friendship and my beloved husband for his endless and ongoing support in every phase of my study.

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My whole hearted thanks and gratitude to one and all who came on my way to success.

ABSTRACT

"You pray for good health and a body that will be strong in old age, but your

rich foods block the God's answer and tie Jupiter's hand's.

-PERSIUS

STATEMENT OF THE PROBLEM:

" A STUDY TO ASSESS THE EFFECTIVENESS OF AMLA JUICE IN REDUCING BLOOD SUGAR AMONG PATIENTS WITH TYPE II DIABETES IN A SELECTED AREA AT NAMAKKAL DISTRICT".

OBJECTIVES:

1) To assess the post prandial blood glucose level of patients with type II diabetes.
2) To evaluate the effectiveness of amla juice consumption on the level of post prandial blood glucose level of patients with type II diabetes.
3) To find out the association between the demographic an clinical variable with the post prandial blood glucose level of patients with type II diabetes.
4) To assess the level of satisfaction among patients with type II Diabetes in experimental group about amla juice administration.

Methodology:

The research approach used for this study was evaluative approach and the research design was true experimental design. 60 patients with type II diabetes, in that 30 in experimental group

and 30 in control group were selected for this study by using purposive sampling technique. Data was collected with the help of self-structured interview schedule. Descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (chi-square, paired 't'test) were used to analyze the data and to test hypothesis.

MAJOR STUDY FINDINGS:

In experimental group the pre-test mean score was 2.966,mean percentage was 59% and standard deviation was 1.129 and in the post- test mean score was 2.533, mean percentage was 50.66% and standard deviation was 1.074 with the effectiveness of 8.34% and paired ' t' test value of t=3.971 which was statistically significant ($p<0.05$) which is an evident for the effectiveness of amla juice in reducing blood glucose level.

The comparison between, blood glucose levels in experimental and control group, showing the value are statistically highly significant, which was observed from the unpaired 't' test value of 13.39 with the p value of <0.05, which is an evident for the effect of amla juice in reducing post prandial blood glucose levels.

CONCLUSION:

The study assessed the effect of amla juice in reducing blood sugar level among patients with type II diabetes. The result found was that amla juice is having effect in reducing blood glucose level after administration of amla juice for the experimental group. By comparing with experimental group and control group by pretest and post test, the effect was identified (assessed). The study concluded that the amla juice is effective in reducing blood glucose level.

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LIST OF ABBREVIATIONS

et. al	And Others
fig	Figure
H_1	Research Hypothesis 1
MSc(N)	Master of Science(Nursing)
No.	Number
P	Probability
prof	Professor
S.D	Standard Deviation
X^2	Chi-square test
%	Percentage
BMI	Basal Metabolic Index
DM	Diabetes mellitus
FBS	Fasting Blood Sugar
FDA	Food and Drug Administration
GI	Glycemic Index
GTT	Glucose Tolerance Test
HDL	High Density Lipoproteins
LDL	Low Density Lipoproteins
VLDL	Very Low Density Lipoproteins
T2DM	Type II Diabetes mellitus

PPBS	Post Prandial
VAS	Visual Analog Scale

CHAPTER-I

INTRODUCTIO

CHAPTER-I

INTRODUCTION

"Understanding the challenges you face with your illness and the planning a life despite them, may be one of the healthiest decision you will ever make".

-LISA COPEN

Challenges in lifestyle, such as increases in energy intake and decreases in physical activity are causing overweight and obesity and leading to an epidemic increases in type II Diabetes Mellitus. Diets with low glycemic index (41) and for a low glycemic load diets are associated with a reduced risk of type II Diabetes. As the world wide incidence of diabetes is increased two to four fold, the search for dietary adjuncts to treat this life altering disease has become for ranging.

The dietary components beneficial in the prevention and treatment of these diseases have not been clearly defined, but it is postulated that some home remedies may play a role .Botanical products can improve glucose metabolism and the overall conditions of individuals with diabetes not only by hypoglycemic effects but also by improving lipid metabolism, antioxidant status, and capillary function. A number of medicinal or culinary herbs have been reported to yield hypoglycemic effects in patients with diabetes.

Diabetes mellitus (DM) also known as simply diabetes is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period .This high blood sugar produces the symptoms of frequent urination, increased thirst and increased hunger. Untreated diabetes can cause many complications. Acute complications include Diabetic Ketoacidosis and Non Ketotic Hyperosmolar coma. Serious long time complications include heart disease, stroke, kidney failure, foot ulcers and damage to the eyes.

Diabetes is due to either the pancreas not producing enough insulin, or the cells of the body not responding properly to the insulin produced.

There are three main types of Diabetes Mellitus,

Type I DM: Results from the body's failure to produce enough insulin, also known as "Insulin –dependent diabetes or Juvenile diabetes".

Type ll DM: Begins with insulin resistance a condition in which cells fail to response to insulin properly. Sometimes combined with an absolute Insulin deficiency.

Gestational Diabetes: It is the third main form and occurs when pregnant women without a previous history of diabetes develop a high blood glucose level.

All forms of diabetes have been treatable .Since insulin became available in 1921 and type II diabetes may be controlled with medications. Both types I and II are chronic conditions that usually cannot be cured. Pancreas transplant have been tried with limited success in type II diabetes mellitus, gastric bypass surgery has been successful in many with morbid obesity and type II Diabetes mellitus.

Gestational diabetes usually resolves after delivery. Diabetes without treatment can causse many complications. Acute complications include hypoglycemic, diabetic ketoacidosis or non- ketotic hyperosmolar coma. Serious long term complications include cardiovascular disease, chronic renal failure and retinal damage. Adequate treatment of diabetes in thus important, as well as blood pressure control and lifestyle factors such as smoking cessation and maintaining a healthy body weight.

AMLA:

Amla belongs to Phyllanthaceae family of trees. It also known as Indian gooseberry. The botanical name of the amla is emblica officinalis. There are several other names of amla in different languages of india, like for instance it is called

Nellikkai in tamil and kannada

Nellika in malayalam

Amla in hindi and gujarat

Amla is the medium size deciduous plant. It grows to the height of 8-18meters. It has a crooked trunk and spreading branches. Its flower is yellow greenish in colour. The fruit is spherical pale yellow with six vertical furrows the average weight of the fruits is 60-70g.

It is planted through the deciduous of tropical India and on the hill slopes upto 2000 meters. It is also grown in Tamilnadu, Rajasthan, Madhya Pradesh also.

The Amla fruit is rich in vitamin C (ascorbic acid) is a source of invaluable minerals such as calcium ,magnesium ,potassium ,iron ,copper, and as well as source of amino acids.

In addition to its generally healthy properties of amla has positive effects on the pancreas, where insulin is produced, and its content of chromium helps to manage blood sugar level.

NEED FOR THE STUDY:

India is diabetes capital of the world.

In India, diabetes is not an epidemic any more but had turned into a pandemic, according to the International journal of diabetes in developing countries which labeled India the diabetes capital of the world. This is mainly because India now has the highest number of patients with type II diabetes in the world.

The international diabetes federations estimate that the number of diabetes patient in India more than doubled from 19 million in 1995 to 40.9 million in 2007. It is projected to increase to 69.9 million by 2025.

Currently up to 11 percent of India's urban population and 3percent of rural population above the age of 15 has diabetes.

Various studies have shown that the high incidence of diabetes in India is mainly because of sedentary lifestyle, lack of physical activity, obesity, stress, and consumption of diets rich in fat , sugar and calories.

The most prevalent is the type II diabetes, which constitutes 95 percent of the diabetic population in the country.

Diabetes affects all people in the society, not just those who live with it. The world health organization estimates that mortality from diabetes and heart disease cost India about 840 billion in the every year and is expected to increase to& 335 billion in the next ten years. These estimates are based on lost productively, resulting primarily from premature death. So with such a huge population of patient with type II diabetes, the country is known as the diabetes capital of the world.

According to the university of Maryland Medical center Indian gooseberry/Amla is an effective traditional remedy which contains chromium, a mineral that regulates carbohydrate metabolism and may make the body more responsive to insulin helping to keep blood sugar at healthy level.

Akhtar et al., evaluated the anti-hyperglycemic and lipid-lowering properties of amla fruit, in normal, as well as diabetic human volunteers. The results indicated a significant decrease in fasting and 2 hours post-prandial blood glucose levels on the 21 st day in both normal and diabetic subjects receiving 1, 2 or 3 g amla powder per day as compared with their baseline values. Significant decreases were also observed in TC and triglycerides in both normal and diabetic volunteers on day 21 that were given either 2 or 3 g amla powder per day. Both normal and diabetic volunteers receiving 2 or 3 g amla powder significantly improved high-density lipoprotein-cholesterol and lowered low-density lipoprotein-cholesterol levels.

Ruitang deng, 2012 conducted randomized, controlled trial to evaluate the effect of emblica officinalis on glycaemic control.120 patients were randomly assigned into two groups .The treatment group received a teaspoon of amla juice and control group received normal diet.

At the end of the study fasting blood sugar levels were significantly decreased in treatment group, whereas no changes were detected in control group.

Behradmanesh Saeed, A double-blind clinical trial was carried out on 80 type II diabetic patients who had not reached the ideal control of the disease. Patients were randomly divided into two equal groups of case and control. The case group received emblica officinalis and the control group received placebo tablets three times a day for three months. The fasting blood sugar (FBS and 2 hours postprandial (2hpp glucose were checked at the beginning and every 2 weeks. The 2nd hour post prandial blood sugar and cholesterol levels were significantly decreased in emblica officinalis treated patients compared to control group.

Shamim et.al., reported that phyllanthus species which were found to involve in regeneration and rejuvenation of beta cells leading to an increased insulin production and secretion which decreases the blood sugar.

Biswas Gopa. Conducted a study on control of hyperglycaemia and hyperlipidemia. He administered amla extract for 40 patients daily for 42 days. After the day of enrolement all patients were followed up twice during the 42 days period. Blood samples were analysed for various biochemical parameters. In view of above findings amla produced significant hypolipidemic and hypoglycaemic effect, these results indicates the usefulness of amla in the managements of diabetes.

Results from several additional case series also suggest amla may improve glycemic control in patients with type II diabetes mellitus. It also be easily available. The investigator felt that continuous intake of amla juice may help the patients to lead a normal life without diabetic drug. This motivated the investigator to choose the study.

FACTS ABOUT DIABETES;

The prevalence of diabetes had reached epidemic proportions.

WHO predicts that developing countries will bear brunt of this epidemic in the 21st century .currently, more than 70 percent of people with diabetes live in low and middle countries.

An estimated 285 million people corresponding to 6.4 percent of the world's adult population will live with diabetes in 2010. The number is expected to grow 438 million by 2030, corresponding to 7.8 percent of the adult population.

While the global prevalence of diabetes is 6.4 percent, the prevalence varies from 10.2 percent in the Western pacific to 3.8 percent in the African region. However , the African region is expected to experience the highest increases.

70% of the current cases of diabetes occur in low and middle income countries. With an estimated 50.8 million people living with diabetes , India has the world's largest diabetes population, followed by china with 43.2 million.

STATEMENT;

"A study to assess the effectiveness of amla juice in reducing blood sugar among patients with type II diabetes in selected area at Namakkal district."

OBJECTIVES:

1) To assess the post prandial blood glucose level of patients with type II diabetes.
2) To evaluate the effectiveness of amla juice consumption on the level of post prandial blood glucose level of patients with type II diabetes.
3) To find out the association between the demographic an clinical variable with the post prandial blood glucose level of patients with type II diabetes.
4) To assess the level of satisfaction among patients with type II Diabetes in experimental group about amla juice administration.

HYPOTHESIS;

All the hypothesis will be tested at 0.05 level

H_1: There will be significant difference between the blood sugar readings before and after the intake of amla juice in the experimental group

H_2: There will be significant difference between the post-test blood sugar of type 2 diabetic patients in the experimental and control group.

H_3: There will be significant association of the mean blood sugar reading with selected baseline factors like age, sex, occupation, nature of work, type of family, duration of illness, regularity of taking medications, sleeping hours, and exercise.

OPERATIONAL DEFINITIONS;

Assess:

It is the action of making a judgment about the value or quality of something. In this study the word assess refers to the process of checking the post prandial blood glucose level of patients with type II diabetes to note the effectiveness of amla juice.

Effectiveness

Effectiveness is the outcome of amla juice administration with regard to reduction in post prandial blood glucose level.

Diabetic patient:

Diabetic patient refers to the clients the age group of 35 to 60 years are diabetes mellitus. It fasting blood sugar greater than 120mg/dl.

Amla juice:

The extract from the amla fruit (approximately 60g) is mixed with 100ml of water and it is administer for 15 days.

Home remedy:

A home remedy is to treat the diabetes mellitus by amla juice to reduce blood sugar level in diabetic clients.

ASSUMPTION:

- Diabetes is a significant public health problem.
- Early detection ,improves delivery of care and better education for self management can reduce much of coplications.
- Amla contains components that have hypoglycemic activities.

DELIMITATIONS:

- The patients with type II diabetes who care willing to participate in the study.
- Who had post prandial blood glucose level more than 140mg/dl
- Who were able to understand local language.
- Those who were on medications.[oral hypoglycemic agent].

CONCEPTUAL FRAMEWORK

The conceptual framework for research study presents the reasoning on which the purposes of the proposed study are based. The framework presents the perspective from which the investigator views the problems.

The conceptual framework deals with the inter-related concepts that are assessable together in same rational schemes by virtue of their relevance to a common theme **(polit&Beck,2004).**

The conceptual framework of the present study is based on wiedenbach's helping Art of clinical nursing theory (1964).

The conceptualization of nursing practice according to this theory consists of 3 steps.

Step 1 – Identifying the need for help.

Step 2 - Ministering the needed help.

Step 3 – Validating that the need for help was met.

Step 1: Identifying the need for help:

Identification involves individualization of the patient experiences and recognition of the patient's perception of his condition.

In this study, the determination of the need for help is by the process of sample selection on basis of inclusion and exclusion criteria followed by the pre-assessment of hyperglycemia among selected patients.

Step 2: Ministering the needed help:

Ministration is providing the needed help. In ministering, the nurse may give advice or information, make referral and apply a comfort measure or carryout a therapeutic procedure. It has two components,

-Prescription

-Real

Prescription:

Prescription refers to the nurse's plan of patients care. A prescription may indicate the broad general action appropriate to implementation of the basic concept as well as suggest the kind of behavior needed to carry out these actions in accordance with the central purpose.

This includes administration of amla juice along with medication for patients in experimental group for 15 days to administer only medications for patients in control group.

Realities:

Are situation that influences the fulfillment of central purpose, wiedenbach's defines 5 realities as;

Agent

The agent is the practicing nurse or her delegate, who is characterized by the personal attributes, capacities, and competencies in nursing.

Recipient:

The recipient, the patient is characterized by the personal attributes, problems and ability to cope with concerns or problems being experienced. Patients with type II diabetes are the recipients in this study.

Goal:

The goal the desired outcome the nurse wishes to achieve. The goal is the end result to be attained by the nursing action. Goal in this study is to reduce the level of hyperglycemia.

Measures and Activity:

It comprises the activities and devices through which the practitioner is enabled to attain her goal. It includes skills, techniques, procedures, and devices that may be used to facilitate nursing practice.

In this study, means refers to preparation oh amla juice and administering it to the experimental group for a period of 15 days.

Framework:

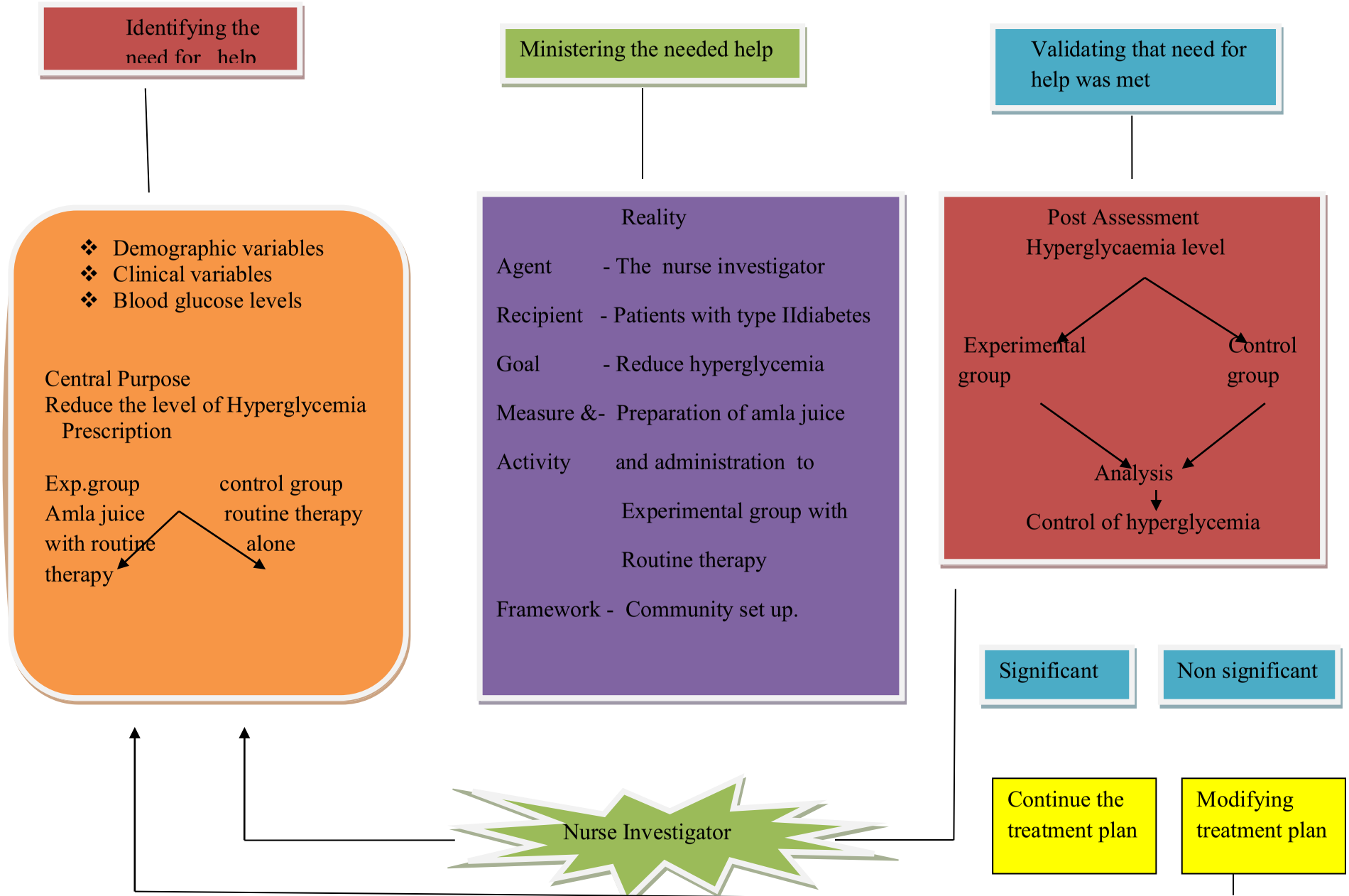
Framework consist of human, environmental, professional and organizational facilities. Framework for this study is selected community area at namakkal district.

Step 3: Validating that the need for help was met:

Validating is evidence that the patients functional ability was restored as a result of the help given.

This was done by the post assessment of hyperglycemia followed by analyzing the findings.

Fig.1: CONCEPTUAL FRAMEWORK BASED ON MODIFIED WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY 1964



CHAPTER-II

REVIEW OF LITERATURE

CHAPTER-II

REVIEW OF LITERATURE

"We must turn to nature itself, to the observation of the body in health and in disease to learn the truth".

-HIPPOCRATES

Review of relevant literature as evidence is the essential background for any research. It refers to both the activities involved in searching for information on a topic as well as to the actual written report the summarizes the state of the existing knowledge on a topic in generally facilitated by the use of various obstructive and indexing services.

Literature review is the key step in the research process. Polit and hungler defined review of literature as "A broad, comprehensive, in depth, systematic and critical review of scholarly publications, unpublished scholarly printed materials, audio visual material and personal communication".

According to Basavanthappa, "It refers to an extensive, exhaustive, systematic examination of publications relevant to the research project".

The investigator did an extensive review of the research and non research literature related to the present study and made on attempt to contribute to a deep insight into problem area and methodology .In order to accomplish the goal in the present study, an attempt has been made to review and discuss the literature under following sub heading.

(i) Literature related to incidence and risk factor of diabetes.

(ii) Literature related to properties of Amla

(iii) Literature related to amla juice administration as a complimentary alternative therapy for hyperglycaemia

I Literature related to incidence and risk factors of diabetes:

Carole willi et al ., (2006), conducted a systematic review and meta analysis of studies describing the between active smoking and the data indicated that active smokers have a 44%, increased risk of developing type II diabetes compared with in non smokers.

Peter Nilsson ,et al ,(2004) A prospective , population based study in Maldives – Sweden was conducted on incidence of diabetes in middle aged men related to sleep disturbances the study result revealed that all together , 28 (4.3%) men developed diabetes and concluded that sleep disturbances and possibility elevated heart rate , in middle aged men are associated with increased risk of diabetes.

Motala ,et al (2004), conducted a prospective community study in a south African Indian cohort (which continued for 10 years) from Durban showed a higher incidence in 563 subjects.

Elise et al (2002) stated that 4,549 participates were examination in a study on incidence of diabetes in American Indians of 3 geographic areas in the year 2002, in which 3,638 returned for a similar examination after an average of 4 years, the high incidence rates found in this study were alarming and they recommended preventive programs to reduce the risk of progressive to diabetes.

Mohan et al (2005) , a longitudinal population based study on incidence of diabetes and pre diabetes on a selected urban south Indian population (ups-19) was conducted , in which he found that among subjects with normal glucose tolerance 48 (10.1%) developed pre-diabetes.the incidence rate of diabetes was very high among urban south Indians , while obesity, abdominal obesity and hypertension were associated withdiabetes.

American dental association , (2005), reported 6.2% of the us population having diabetes it can be expected to have more than 120 diabetes patients visits per year. This includes the 5% of diabetes patients who are type 1 and the 95% who are type II and the incidence of diabetes is growing dramatically.

Professional N. Viswanathan ,(2004) reported endowment public lecture on diabetes 2004 – in the world and in India by proof .lefebbre , according to him, in2003, there was 189 million diabetes in the world . the projected figure for 2020 is 324 million.

Dowre, 1996, conducted a study to assess the incidence of diabetes in the pacific and Indian ocean population. The study reported that the highest incidence rates (above 15 cases 11000 person years)were more observed in the pima Indians , rural wangles of Papua , new guinea , nanruens urban Samoans and Indians in Mauritius. Dowre had predicted that continuing modernization and increasing obesity in heavily populated region of the Indian , sub-continent , Africa and china may produce epidemics of diabetes.

II. Literature related to properties of amla:

Nain et.al, 2012, stated that amla have been shown to act as a hypoglycaemic agent. The unique dietary fibre composition and high chromium content in amla appears to be responsible for these therapeutic properties.

Suryanarayan et.al, stated that amla and isolated amla fractions have been shown to concluded that amla have been reported to be beneficial for treating type II diabetes. Mechanism such as the stimulating or regenerating effect of beta cells will secrete the insulin to reduce the blood sugar.

Bhardwaj 1994, conducted a study on, control of hyperglycaemia and hyperlipidemia by plant product among patients with type II diabetes. Oral glucose tolerance test showed improvement. The serum total cholesterol low density lipoproteins cholesterol also reducrd significantly.

K.H Khan conducted that oral administration of the amla extracts reduced the blood sugar level in both animal and human subjects and an enriched fraction of tannoids are effective in the management of diabetes.

Raaz k Maheswari et.al, described that administration of amla juice extract with bitter gourd juice for two months will stimulate the pancreas to secrete insulin,thus decreasing blood sugar in diabetes due to its high vitamin c content,is effective in controlling diabetes mellitus.

Virendra Yadav et.al, conducted a systemic review on the role of selected Indian plants in management of the type II diabetes. They concluded that amla have been reported to be

beneficial for treating type II diabetes. Mechanisms such as the stimulating or regenerating effect on beta cells of extra pancreatic effects are proposed for the hypoglycaemic action of these herbs.

Sikha et.al, described that the aqueous extract of amla seeds was investigated for its anti-diabetic activity in Streptozotocin induced type 2 diabetes animal models. They concluded the dose of 300 mg kg^{-1} of aqueous seed extract in sub- and mild-diabetic animals produced a maximum fall of glucose level in the blood .

Walia K and Boolchandani R, stated that the nutritive value and medicinal properties of amla used in improving blood glucose metabolism in type II diabetes. They concluded that amla supplement is effective in reducing the fasting and post prandial blood glucose levels and HbA1C levels.

III. Literature related to Amla juice administration as a complimentary alternative therapy for hyperglycaemia :

Jagatkumar bhatt. Conducted a study on control of hyperglycaemia and hyperlipidemia. He administered emblica officinalis extract for 40 patients daily for 42 days. After the day of enrolment all patients were followed up twice during the 42 days period. Blood samples were analyzed for various biochemical parameters. In view of above findings amla produced significant hypolipidemic and hypoglycemic effect, these results indicates the usefulness of amla in the managements of diabetes.

Snehal.et.al, evaluated the anti hyperglycemic and lipid lowering properties of emblica officinalis fruit in normal and diabetic human volunteers. The results indicated a significant decrease in fasting and 2hrs post prandial blood glucose levels on the 21st day in both normal and diabetic subjects receiving 1,2,or3 amla powder per day as compared with their baseline values.

Significant decreases were also observed in total cholesterol and triglycerides in both normal and diabetic volunteers on day 21 that were given either 2or3g amla powder per day.

Directory of open access journal Sweden, This study was performed to investigate the hypoglycemic effect of emblica officinalis on blood glucose. A double blind clinical trial was carried out on so type II diabetic patients who had not reached the ideal control of the disease. Patients were divided into two equal groups of case and control. The case group received emblica officinalis and the control group received placebo tablets three times a day for three months. The fasting blood sugar and 2hr postprandial were checked for every 2weeks.there was significant decreases in 2hr postprandial blood sugar in emblical officinalis treated patients compared to control group. So it showed that emblica officinalis might be beneficial in diabetic patients.

Prasan R Bhandari, conducted a study diabetic patients to reduce the blood. Glucose levels by amla extract. The subjects were randomly assigned into two groups, treatment and control. The treatment group took a medium sized fresh amla on a daily bases while the control group received no supplementation for 2 months. During the course of study ,no modification in the diet or medication was made in both groups . it revealed that a emblica officials is effective in lowering blood glucose levels in diabetic patients.

K.V santhi sri.et,al, To study the effect of amla in type 2 diabetic selected 60 to DM subjects, devided into 2 groups, control group and experimental group. The experimental group of 30 patients was given a medium sized fresh amla on a daily basis for 6 months. They were asked to consume the fruit daily before breakfast. During the course of supplementation no modification in the diet or medication was made for both experimental and control groups. At the

end of the supplementation the biochemical parameters like FBS, PPBS and lipid profile were monitored. One medium size amla for 6 months led to a significant decrease in the FBS, PPBS, lipid profile values in the experimental group. There were no significant changes in the control group. Sabu and kuttan 2002 hakim et al 1996 conducted a study to assess the hypoglycemic effect of emblica officinalis. They administered oral supplementation of amla extract which reduced the blood sugar level of patients with type II diabetes.

Shekella,et.al,2005, A systematic review of trials was conducted on the ayurvedic herbs for diadetes. They found that there is evidence to suggest that the amla has a glucose cover effect.

Nahas R, moher M, 2009, Canada , described the complementary and alternative medicine for the treatment of type II diabetes. To review clinical evidence supporting complementary and alternative medicine interventions for improving glycemic control in type II diabetes mellitus. Fibre, green tea, amla and fenugreek have other benefits but there is evidence that they substantially improve glycemic control. Further research on bitter melon and cinnamon is warranted.

Reetesh et. al The aqueous fruit extract of Phyllanthus emblica showed effect on typeII diabetes, triglycerides (TG) and liver specific enzyme, alanine transaminase (ALT). It was shown that aqueous fruit extract in a dose of 200mg/kg body weight, significantly decreased the blood glucose level after it's intraperitoneally administration in alloxan induced diabetic rats. The aqueous extract also induced hypotriglyceridemia by decreasing TG levels in diabetic rats. In addition, the extract was also found to improve liver function by normalizing the activity of liver specific enzyme alanine transaminase (ALT).

Mehta et al., a maximum reduction of 27.3% in the blood glucose level was observed at the 6 h time point in fasting blood glucose studies in normal rats after the administration of 300 mg kg−1BW of an aqueousextract of amla seeds. The same dose produced a 25.3% drop in normal rats during the glucose tolerance test (GTT) at 3 h after glucose gadministration and a maximum reduction of34.1%and41.6%comparedto the control group in sub- and mildly diabetic animals, respectively.

Krishnaveni et al. (2010) , conducted the antidiabetic activities of amla and its extract have been studied in animal models and humans. They found that oral administration of an ethanol extract of amla fruit (200 mg kg-1BW for 45 days) resulted in a significant reduction in blood glucose and a significant increase in plasma insulin in streptozotocin (STZ)-induced type 2 diabetic rats. In addition, with an ethanol extract of amla fruit showed a significant reduction in blood lipid levels and an elevation in HDL cholesterol levels.

Nampoothiri et al. (2011) conducted a study on type 2 diabetes which revealed that an extract of Phyllanthus embilica fruit was able to inhibit both enzymes α-amylase and α-glucosidase significantly more efficiently than that of a reference compound . These results may mechanistically explain some of the anti-diabetic effects of Phyllanthus emblica.

S.A. Kalekar et al(2013),In a recent , invitro study showed that amla possess insulin sensitizing and glucose stimulatory activity. A hyro-alcoholic extract of P. emblica(200 µg/ml) was found effective to stimulate glucose uptake in adipocyte cells in 3T3L1 adepocyte cell culture.

Jai prakash et. Al, Oral administration of 75% methanolic extract (100 mg/kg body weight) of Emblica officinalis fruit to normal and alloxan induced diabetic rats, resulted in significant lowering of serum glucose level in 4 hours. In another investigation on ethyl acetate extract of the fruit (20 and 40mg/ kg/day) when given orally for 20 days to streptozotocin diabetic rats, significantly improved glucose metabolism. The hydro methanolic extract of leaves of Emblica officinalis showed antidiabetic effect in streptozotocin-induced type 2 diabetes mellitus in rats. Emblica officinalis fruit was evaluated for anti-hyperglycaemic and lipid-lowering properties in human volunteers. The results indicated a significant decrease ($P < 0.05$) in fasting and 2hpost-prandial blood glucose levels on the 21st day in both normal and diabetic subjects receiving 1, 2 or 3 g of amla fruit.

Sharma S et. al, The hypoglycemic effect was measured by blood glucose and plasma insulin level. Oral administration of the amla at a concentration of 100, 200, 300 and 400 mg/kg b.w. daily for 45 days showed a significant ($P<0.05$) decrease in fasting blood glucose and increase insulin level as compare with the diabetic subjects. Also it significantly ($P<0.05$) reduced all biochemical parameters (serum creatinine, serum urea, SGOT, SGPT and lipid profile). The treatment also resulted in a significant ($P<0.05$) increase in reduced glutathione, glutathione peroxidase, superoxide dismutase, catalase, and decrease LPO level inthe liver and kidney of diabetic subjects.

Dr. R.Agarwal, conducted a randomised double blind placebo controlled study to evaluate the safety and effectiveness of polyherbal powder (Sugaradik) in achieving glycaemic control in newly diagnosed type 2 diabetics. Eighty newly diagnosed patients of type 2 diabetes

were selected after meeting inclusion and exclusion criteria. Patients were randomly divided into two groups. One group received drug and other group received placebo bearing a distinctive code number. Anthropometric parameters and HbA1c were performed initially as well as after three months of treatment period. Fasting blood sugar and blood pressure were recorded weekly. After three months of treatment of polyherbal powder (Sugaradik) there was a significant improvement in systolic blood pressure (136.05±3.30 to126.42±1.51 mmHg) and fasting blood sugar (233.03±8.81to 136.16±4.96 mg/dl; p less than 0.001). There was a significant reduction in HbA1c (8.39±0.30 to 6.37±0.10percent; p less than 0.001). No adverse effects were observed in this trial. He concluded that Polyherbal preparation of ten classic herbs appears to be effective in controlling glycemia. Sugaradik seems to be a safe drug and an effective oral agent in the management of type 2 diabetes.

CHAPTER-III

RESEARCH METHODOLOGY

CHAPTER-III

METHODOLOGY

"A man too busy to take care of his health is like a machine too busy to take care of his tools"

-Spanish Proverb

Methodology is the major phase of research in which the investigator makes a number of decisions about the methods and materials to be used to study the research problems basically through the collection of data. These methodological decisions generally hare several implications for the reliability of the study finding.

[polit and hungler 1999]

This chapter deals with the methodological approach adopted for the study. The purpose of the study is to assess the effectiveness of amla juice on reduction of blood glucose levels in patients with type II diabetes.

The methodology includes description of research approach research designs , site and settings, sampling technique, development of the tool , validation of the tool and reliability, methods of data collection , pilot study and plan for statistical analysis.

RESEARCH APPROACH:

Research approach is the most significant part of any research. The appropriate choice of the research approach depends on the purpose of the research study is under taken.

According to polit and hungler (1999) evaluative research is an extremely applied form of research and involves finding out how well a policy is working. Its goal is to assess or evaluate research is generally applied where the primary objectives is to determine the extent to which a given treatment meets the desired results.

To accomplish the objectives of this study an evaluative approach is considered most appropriate, since the researcher want to assess the effectiveness of amla juice upon hyperglycemia.

REASEARCH DESIGN:

The research design refers to the researchers overall plans for obtaining answers to the research questions and for testing the research hypothesis. The research design spells out the strategies that the researcher adopts to develop information that is accurate, objective and interpretable [polit and hungler 1999].

A true experimental research design was adopted for conducting this study. It sfulfils the criteria such as randomized, manipulation and control.

SCHEMATIC REPRESENTATION OF THE RESEARCH DESIGN:

	GROUP	PRE ASSESSMENT	INTERVENTION	POST ASSESSMENT
R	E	O_1	X	O_2
	C	O_1	-	O_2

R = Randomization

O_1 = Pre assessment of hyperglycemia

O_2 = Post assessment of hyperglycemia

X = Amla juice administration

E = Experimental group

C = Control group

VARIABLES:

Variables are the qualities, properties or characteristics of person. Things of situation that change or vary.

The variables mainly include in the study are dependent variables independent variables and extraneous variables.

- **Dependent variables:**

It is the response, behaviour or outcome predicted or explained in research **(Kothari CR,2004).**

In this study, the dependent variable is post prandial blood glucose level of patients with type II diabetes.

- **Independent variables:**

An independent variable is the treatment or experimental activity that is manipulated or varied by the researcher to create an effect on the dependent variable**(Kothari CR,2004).**

In this study, the independent variable is the intake of amla juice.

- **Extraneous variables:**

Extraneous variables in this study are age, gender, marital status, religion, education, occupation, income, dietary habits, regular exercise.

SITE AND SETTING:

The setting selected for the present study is kuppandapalayam and sanarpalayam community area at Namakkal district.

POPULATION:

According to Polit and Hungler, Population refers to the entire aggregation of cases that meets designed criteria". The requirement of defining a population for a research project arises from the need to specify the group to which the study can be performed.

The population for the present study is patients with type II diabetes in kuppandapalayam and sanarpalayam community area at **Namakkal district.**

SAMPLE:

The samples are patients with type II diabetes who met the eligible criteria.

SAMPLING TECHNIQUE:

Sampling technique is defined as the process of selecting a group of the elements with which to conduct. In this study, purposive sampling technique is used.

SAMPLE SIZE:

The proposed sample size for the study is 60 patients. In that 30 were experimental group and 30 were control groups

SAMPLING CRITERIA

INCLUSION CRITERIA: The study will include patients who,

- Have post prandial blood glucose level above 140mg/dl.
- Have type II diabetes on treatment with oral hypoglycemic drugs.
- Are above the age of 30 years
- Patients who understand Tamil or English.
- Patients, who are willing to participate,

EXCLUSION CRITERIA

- Patients with type I diabetes mellitus.
- Patients associated with bronchial asthma, sinusitis.
- Patient who are unwilling to participate.
- Patient with type II diabetes who are on insulin.
- Patients with peptic ulcer, diabetic complications such diabetic nephropathy, retinopathy and ischemic artery disease.

SCHEMATIC REPRESENTATION OF THE STUDY DESIGN

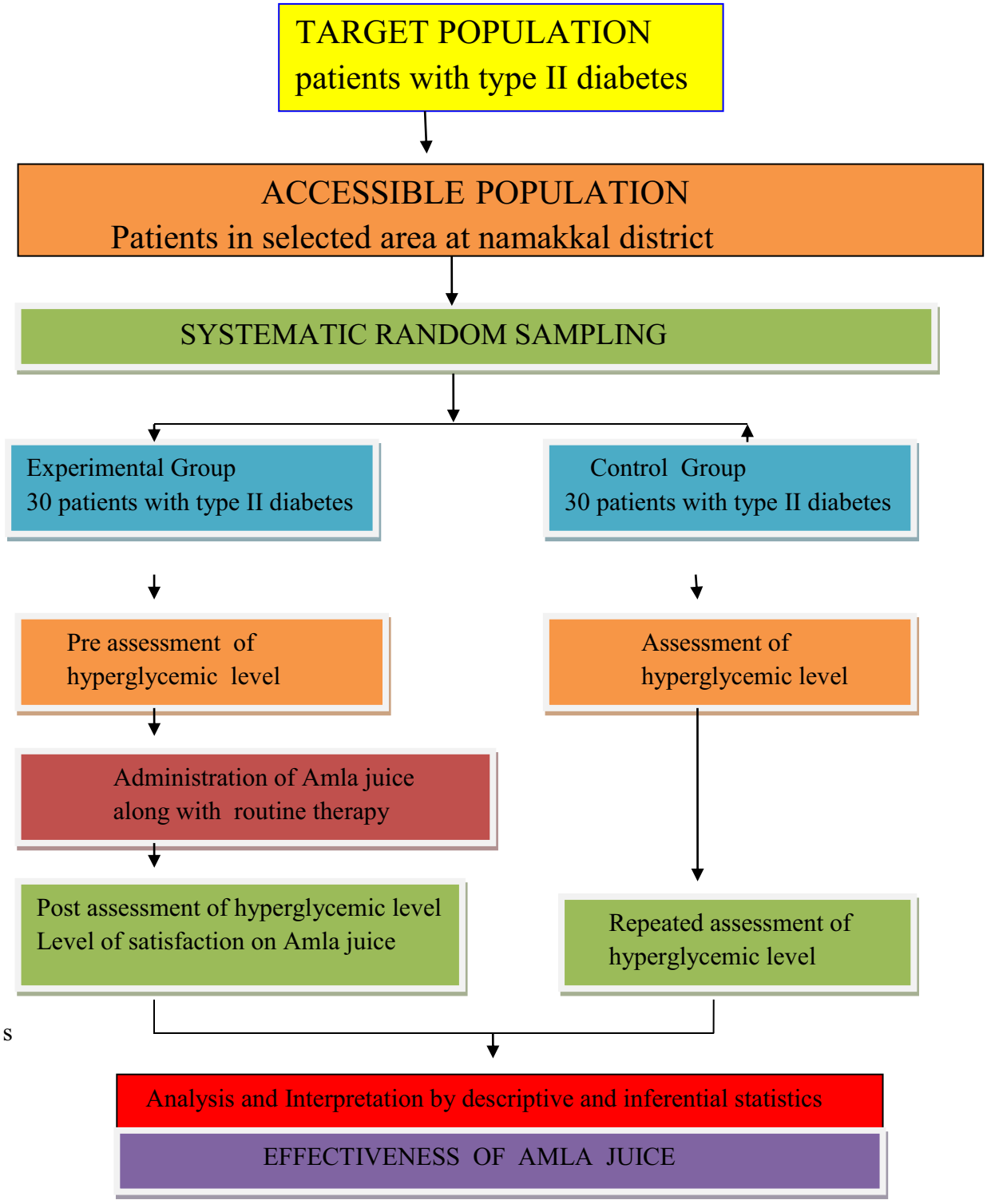


Fig 3.1: schematic representation of the study design

SELECTION OF THE TOOL:

In the present study semi structured interview was used to collect the socio-demographic data. The Rating scale was developed to assess patient's satisfaction about amla juice and the blood glucose assessment chart to record the Post prandial blood glucose level.

DEVELOPMENT OF THE TOOL;

The following steps were carried out in formulation of the tool.

1) Related literatures were required.
2) Blue print prepared.
3) Guidance and consultation of the subject experts were taken and alternations were made accordingly.
4) Consultations with statistician was done for the preparation of the plan for statistical data analysis.
5) Reliability was checked during pilot study.
6) Calibration of glucometer was done for measuring the blood glucose levels

Review of literature includes related review of journals, articles and books published and unpublished research studies. They were reviewed and used for the development of the tool.

The blue print was prepared to construct the tool which consists of 9 demographic variables and 5 clinical variables, blood glucose assessment chart and rating scale on satisfaction of amla juice.

DESCRIPTION OF THE TOOL

Tool consists of three sections.

Section 1 : Demographic and clinical variables of the patients with Type II diabetes.

Section 2 : Blood glucose assessment chart.

Section 3 : Rating scale.

SECTION 1 :

Demographic variables proforma:

It consist of selected demographic variables like age, gender, marital status, religion, education, occupation, income per month, dietary habits and regular exercise.

Clinical variable proforma:

Clinical variables consist of duration of illness, weight in kgs, basal metabolic index, family history of diabetes and management of diabetes.

SECTION 2 :

BLOOD GLUCOSE ASSESSMENT CHART:

This assessment chart is used to record the post prandial blood glucose scoring before and after intervention from the patients with type II diabetes. The total maximam score for the items was 5.

Score interpretation:

Range	PPBG	Scoring
<140 mg/dl	Normal	1
141-210 mg/dl	Mild	2
211-280 mg/dl	Moderate	3
281-350 mg/dl	Severe	4
>351 mg/dl	Very severe	5

THIRD SECTION

Rating scale on satisfaction of amla juice:.

In this, rating scale is used to assess the satisfaction level of patients with type II diabetes who is taken for experimental group. The scoring is awarded according to the satisfaction level. The maximum scoring for satisfaction is 4.

Score Interpretation:

< 25% - Not satisfied.

25-50% - Satisfied.

51-75% - Moderately satisfied.

>75% - Highly satisfied.

RELIABILITY OF THE INSTRUMENT:

Reliability of research instrument is defined as extent to which the instrument yields the same results on repeated measures. It is then concerned with consistency, accuracy, precision, stability equilance. The observation was conducted for a 6 patients with type II diabetes. The reliability of the tool was established by testing the consistency.

VALIDATION OF INSTRUMENT:

The validity refers to whether a measuring instrument accurately measures what it is supposed to measure.

The content validity of the tool will be ascertained in consultation with experts in the field of medical surgical nursing. The experts were requested to give their opinion regarding reliance, appropriateness and degree of agreement in each items in the tool. Suggestions and recommendations given by the experts will be considered and modification of tool will be done.

PILOT STUDY:

A pilot study is a small preliminary investigation of the same general characteristics as the major study. It is designed “to acquaint the researcher with the problems to be corrected in preparation for the larger research project and try out the problems for collecting the data”. Pilot study was conducted to ensure validity and reliability and feasibility for giving intervention.

The pilot study was conducted in kuppandapalayam community area at Namakkal district, after getting formal permission from the principal. In this study 6 samples will be selected by getting prior permission. A purposive sampling technique will be used to select the sample. 3 samples in experimental group and 3 in control group who fulfilled the inclusion criteria other than the main study sample area. The data analysis will be done by using descriptive statistics.

ETHICAL CONSIDERATION

Prior to data collection the permission will be obtained from the Principal of college of Nursing and oral consent will be obtained from the samples. Confidentiality will be maintained.

DATA COLLECTION PROCEDURE

- Prior to the data collection, permission will be obtained from the concerned authority for conducting the study.
- Subjects will be selected according to the selected criteria and confidentiality will be assured.
- Written informed consent will be obtained from the subject.
- The investigator will collect the baseline proforma and check the pre-test blood sugar of clients on Day 1 using the glucometer
- The investigator will instruct the experimental group clients about amla juice consumption.
- Experimental group consumes amla juice from Day-2 for 15 days.
- Client will record the daily intake of amla juice daily in the compliance diary.
- The investigator would recheck the blood sugar level of clients using the glucometer on Day 7 and again on Day 16.

Instruments intended to be used

The instruments intended to be used in this study are:

- Baseline Proforma
- Glucometer, strip and needle
- Compliance diary
- Blood sugar proforma
- Rating scale for satisfaction.

PLAN FOR DATA ANALYSIS

Data will be collected and observed from 60 patients with type II diabetes who are in kuppandapalayam and sanarpalayam community area. The gathered data will summarized and tabulated, grouped and analyzed by utilizing bio statistical methods of both descriptive (which includes mean, percentage, standard deviation) and inferential statistics (which includes chi-square test, paired ‘t’ test).

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

CHAPTER IV

ANALYSIS AND INTERPRETATION

INTRODUCTION:

This chapter presents the analysis and interpretation of the data collected to determine the effect of amla juice on the post prandial blood glucose level of patients with type II diabetes.

Kerlinger (1995) defines analysis as the category, ordering manipulating and summarizing of data to obtain answers to research question.

Data was collected from 60 samples who were patients with type II diabetes.

STATISTICAL ANALYSIS:

The data obtained was classified, tabulated and the following analysis was performed in fulfilling the objectives of the study. The data analysis involves the translation of the information collected during the course of the research project into interpretable, convenient and descriptive terms and to draw inferences from them using statistical methods. The purpose of analysis is to summarise, compare and test the proposed relationship and inferential findings.

OBJECTIVES THE STUDY:

1) To assess the post prandial blood glucose level of patients with type II diabetes.
2) To evaluate the effectiveness of amla juice consumption on the level of post prandial blood glucose level of patients with type II diabetes.
3) To find out the association between the demographic an clinical variable with the post prandial blood glucose level of patients with type II diabetes.
4) To assess the level of satisfaction among patients with type II Diabetes in experimental group about amla juice administration.

The data collected from the type II diabetes mellitus patients are organized, analysed and presented under the following headings:

SECTION I: **i)** Distribution of demographic variables of respondents.

ii) Distribution of clinical variables of respondents.

SECTION II:

Assessment of the post prandial blood glucose levels of patients with type II diabetes in the experimental and control group before and after intervention.

SECTION III:

Association between demographic and clinical variables with the post prandial blood glucose levels in patients with type II diabetes in the experimental and control group.

SECTION IV:

Assessment of the level of satisfaction among patients with type II Diabetes in experimental group about amla juice administration.

SECTION I:

i) DISTRIBUTION OF THE DEMOGRAPHIC VARIABLES

This section deals with the analysis of the data collected from 60 patients with typeII diabetes based on their specified inclusion criteria and enplaned in frequency and percentage are represented.

Table 4.1 : Frequency and percentage distribution of sample

Demographic variables		Experimental group		Control group	
		F	%	F	%
Age	31-40 years	6	20%	7	23%
	41-50 years	10	33%	8	27%
	51-60 years	11	37%	9	30%
	>60 years	3	10%	6	20%
Gender	Male	14	47%	13	43%
	Female	16	53%	17	57%
Marital status	Married	19	63%	20	67%
	Unmarried	5	17%	6	20%
	Divorced	2	7%	3	10%
	Widow/Widower	4	13%	1	3%
Religion	Hindu	15	50%	18	60%
	Christian	12	40%	6	20%
	Muslim	3	10%	6	20%
	Others	-	-	-	-
Education	Uneducate	2	7%	5	17%
	Primary	7	23%	6	20%
	High school	8	27%	7	23%
	Higher secondary	7	23%	6	20%

	>15,001	3	10%	4	13%
Occupation	Business	8	27%	5	17%
	Govt .Employee	6	20%	4	13%
	Private sector	9	30%	9	30%
	Others	7	23%	12	40%
Dietary habits	Vegetarian	5	17%	4	13%
	Non Vegetarian	25	83%	26	87%
On regular exercise	Yes	22	73%	19	63%
	No	8	27%	11	37%

The data presented in the above table is according to age of patients in experimental group 6(20%) samples are in the age group of 31-40 years, 10(33%) in the age group of 41-50 years, 11(37%) in the age group of 51-60 years, 3(10%) in the age group of above 60 years. Similarly, in control group 7(23%) in the age group of 31-40 years, 8(27%) in the age group of 41-50 years, 9(30%) in the age group of 51-60 years and 6(20%) in the age group of above 60 years.

The gender of patients in experimental group 14(47%) of samples are male and 16(53%) of samples are female patients. Similarly, in control group 13(43%) of samples are male and 17(57%) of samples are female patients.

It is observed that according to the marital status of patients in experimental group 19(63%) of samples are the married, 5(17%) of samples are unmarried, 4(13%) of samples are widower/widower and 2(7%) of samples are divorced. Similarly, in control group 20(67%) of samples are the married, 6(20%) of samples are unmarried, 1(3%) of samples are widower/widower and 3(10%) of samples are divorced.

According to religion of patients in experimental group 15(50%) of samples are the Hindu's, 12(40%) of samples are Christian's, 3(10%) of samples are Muslims and other religion have no samples (0%). Similarly, in control group 18(60%) of samples are the Hindu's, 6(20%) of samples are Christian's, 6(20%) of samples are Muslims and other religion have no samples (0%).

That data presented in the above table is that according to the educational status of patients in experimental group 2(7%) of samples are uneducated, 7(23%) of samples are the primary education, 8(27%) of samples are the high school education, 7(23%) of the samples are higher secondary education and 6(20%) of the samples are graduate and above.other. Similarly, in control group . 5(17%) of samples are uneducated, 6(20%) of samples are the primary education, 7(23%) of samples are the high school education, 6(20%) of the samples are higher secondary education and 6(20%) of the samples are graduate and above other. It is observed from the above that according to income per month of the patients in experimental group 12(40%) of samples are in the income of less than Rs.5000/month , 10(33%) of samples are in the income of Rs.5001-10,000/month, 5(17%) of samples are in the income of Rs.10,001-15,000/month and 3(10%) of samples are in the income of more than 15,000/month. Similarly, in control group 11(37%) of samples are in the income of less than Rs.5000/month, , 9(30%) of samples are in the income of Rs.5001-10,000/month, 6(20%) of samples are in the income of Rs.10,001-15,000/month and 4(13%) of samples are in the income of more than 15,000/month.

That data presented in the above diagram is that according to the occupation of patients , in experimental group 8(27%) of samples are doing business, 6(20%) of samples are working as government employee , 9(30%) of samples are working in private sector, 7(23%) of the samples are coming under other occupation. Similarly, in control group, 5(17%) of samples are doing

business, 4(13%) of samples are working as government employee, 9(30%) of samples are working in private sector, 12(40%) of the samples are coming under other occupation.

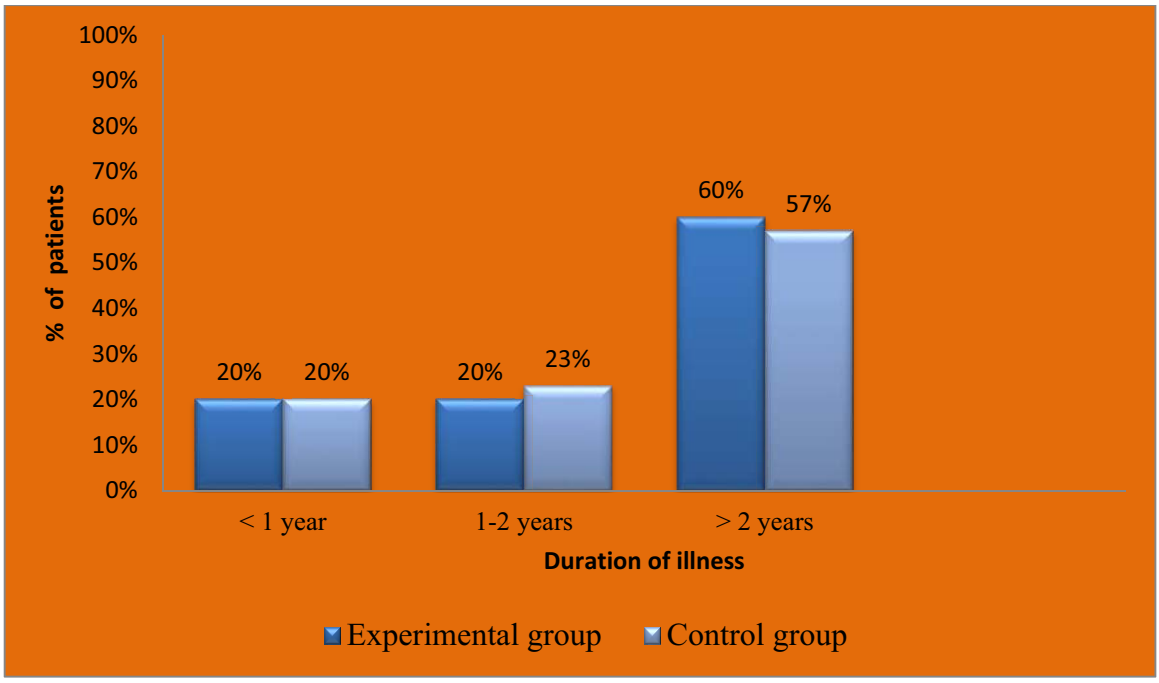
The data presented in the above diagram represents dietary habits of patients, in experimental group 5(17%) of samples are vegetarian and 25(83%) of samples are non vegetarian patients. Similarly, in control group 4(13%) of samples are vegetarian and 26(87%) of samples are non vegetarian patients.

The data presented in the above diagram is according to on regular exercise of patients, in experimental group 22(73%) of samples are on regular exercise and 8(27%) of samples are not on regular exercise. Similarly, in control group 19(63%) of samples are on regular exercise and 11(37%) of samples are not on regular exercise.

Table 4.2 : Frequency and percentage distribution of clients on selected clinical variables

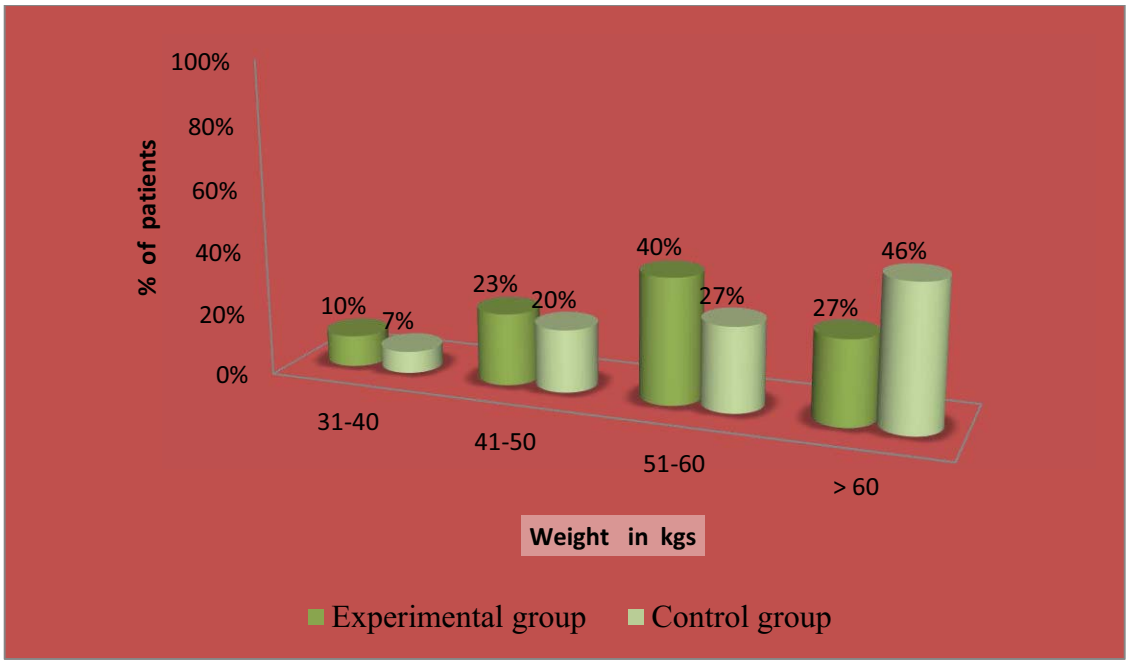
Clinical variables		Experimental group		Control group	
		F	%	F	%
Duration of illness	<1 year	6	20%	6	20%
	1-2 years	6	20%	7	23%
	>2 years	18	60%	17	57%
Weight in kgs	31-40	3	10%	2	7%
	41-50	7	23%	6	20%
	51-60	12	40%	8	27%
	>60	8	27%	14	46%
BMI	< 18.4	3	10%	2	7%
	18.5-22.5	7	23%	6	20%
	22.6-29.9	12	40%	8	27%
	>30	8	27%	14	46%
Family history of diabetes	Father	7	23%	6	20%
	Mother	6	20%	5	17%
	Uncle	2	7%	3	10%
	Other relation	2	7%	2	7%
	No	13	43%	14	46%
Management of illness(DM)	Diet & exercise	-	-	-	-
	Insulin	-	-	-	-
	OHA's	8	27%	11	37%
	Both a & c	22	73%	19	63%

Fig 4.1: Bar diagram showing the distribution of patients according to duration of illness



That data presented in the above diagram is that according to the duration of illness, in experimental group 6(20%) of patients are having illness less than 1 year, 6(20%) of patients are having illness for 1-2 years, 18(60%) of patients are having illness more than 2 years. Similarly, in control group. 6(2o%) of patients are having illness less than 1 year , 7(23%) of patients are having illness for 1-2 years, 17(57%) of patients are having illness more than 2 years.

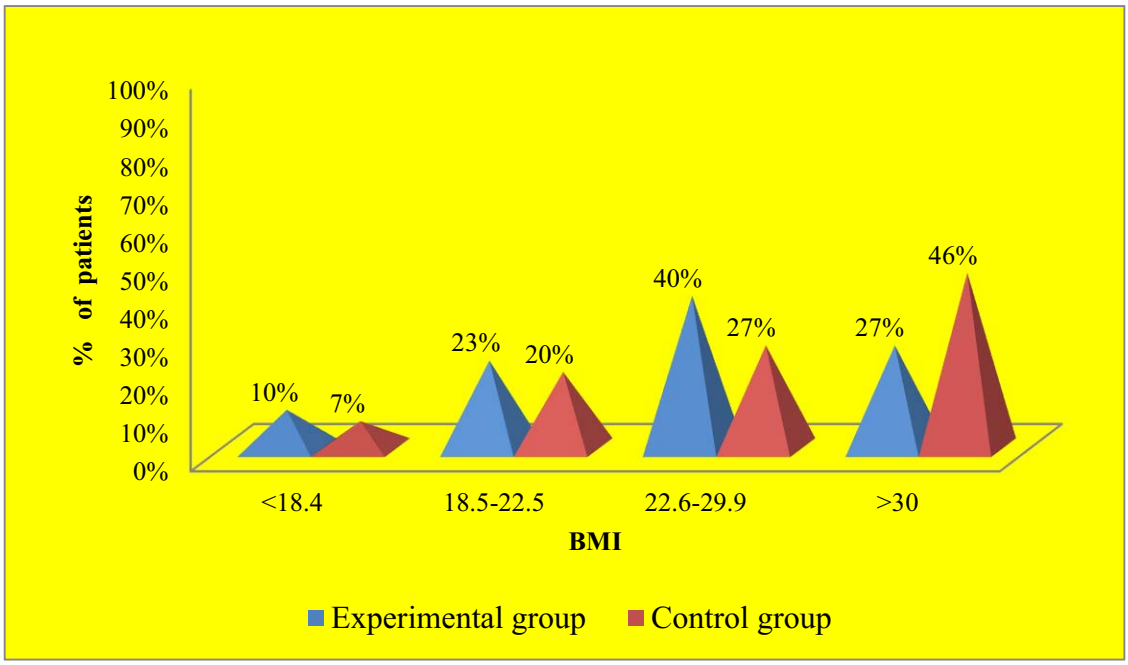
Fig 4.2: Cylindrical diagram showing the distribution of patients according to weight.



That data presented in the above diagram is that according to weight in kilogram of patients , in experimental group 3(10%) of patients are weighing between 31-40kgs , 7(23%) of patients are weighing between 41-50kgs , 12(40%) of samples are weighing between 51-60kgs, 8(27%) of the patients are weighing more than 60kgs. Similarly, in control group, 2(7%) of patients are weighing between 31-40kgs, 6(20%) of samples are weighing between 41-50kgs , 8(27%) of patients are weighing between 51-60kgs, 14(46%) of the patients are weighing more than 60kgs

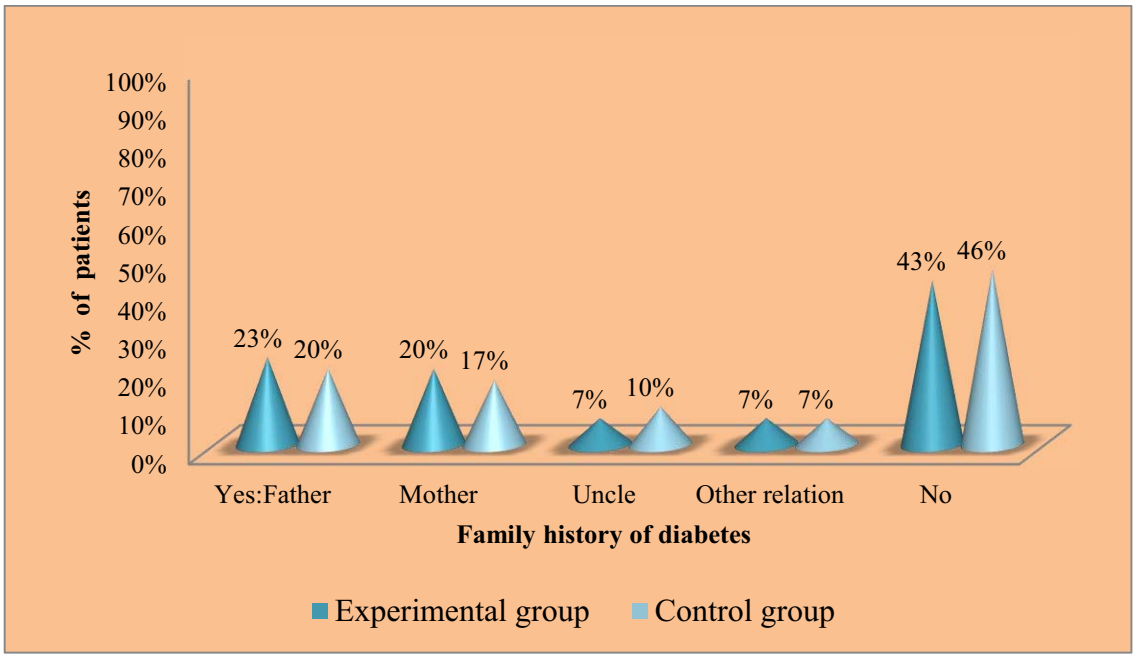
.

Fig 4.3: Pyramidal diagram showing the distribution of patients according to Basal Metabolic Index



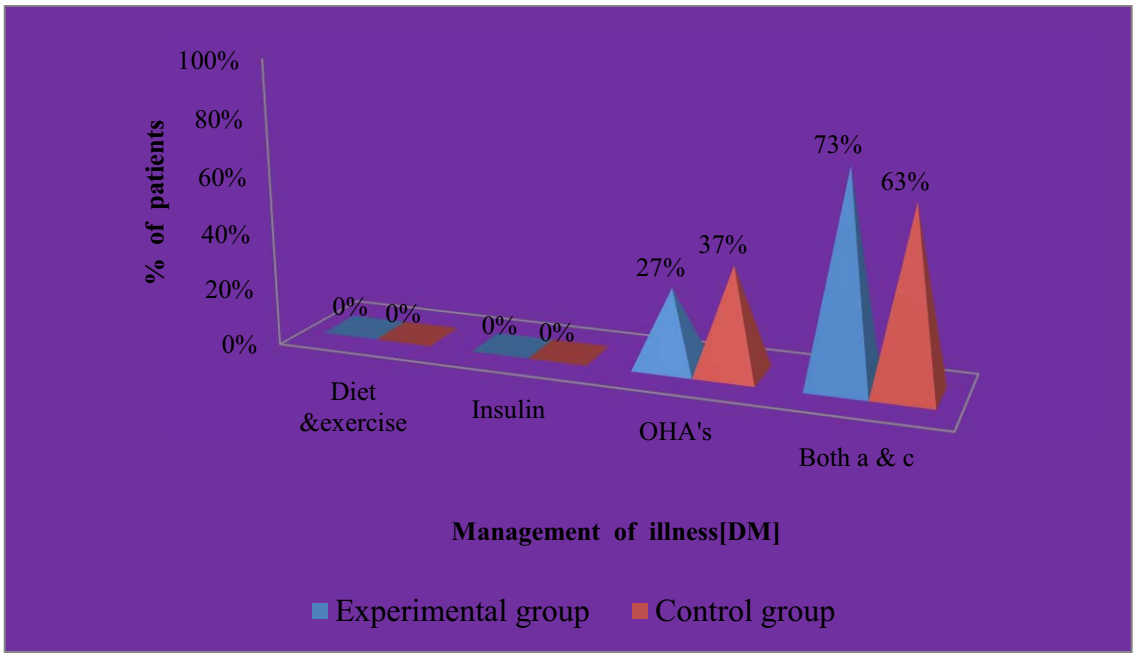
That data presented in the above diagram is that according to basal metabolic index of patients, in experimental group 3(10%) of patients are less than 18.4, 7(23%) of samples are between 18.5-22.5, 12(40%) of patients are between 22.6-29.9, 8(27%) of the samples are more than 30. Similarly, in control group, 2(7%) of patients are less than 18.4, 6(20%) of patients are between18.5-22.5, 8(27%) of patients are between 22.6-29.9, 14(46%) of the patients are more than 30 BMI.

Fig 4.4: Conical diagram showing the distribution of patients according to Family history of diabetes.



That data presented in the above diagram is that according to the family history of diabetes of patients, in experimental group 13(43%) of patients are not having family history of diabetes, 7(23%) of patients are having family history from father, 6(20%) of patients are having from mother, 2(7%) of the patients are having from uncle and other relations. Similarly, in control group . 14(46%) of samples are not having family history of diabetes , 6(20%) of samples are having family history from father, 5(17%) of patients from mother and 3(10%) of the samples from uncle and 2(7%) of the patients from other relations

Fig 4.5: Pyramidal diagram showing the distribution of patients according to Management of diabetes.



That data presented in the above diagram is that according to the management of illness of patients, the result of experimental group showing that 22(73%) of patients are on both oral hypoglycemic agents and diet and exercise , 8(27%) of patients are only on oral hypoglycemic agents. Similarly, in control group showing that 19(63%) of patients are on both oral hypoglycemic agents and diet and exercise, 11(37%) of patients are only on oral hypoglycemic agents.

SECTION II:

ASSESSMENT OF THE POST PRANDIAL BLOOD GLUCOSE LEVELS OF PATIENTS WITH TYPE II DIABETES IN THE EXPERIMENTAL AND CONTROL GROUP BEFORE AND AFTER INTERVENTION:

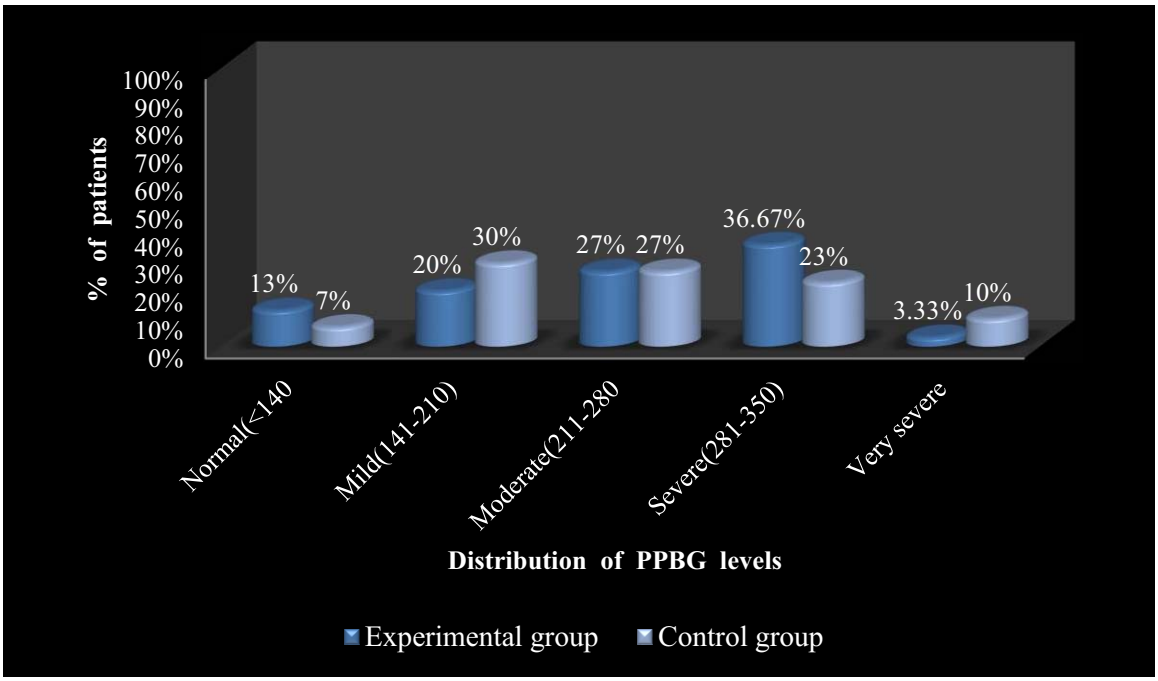
An attempt had been made to assess the effect of amla juice on blood glucose level of patients with type II diabetes in the experimental and control group. After collecting the post prandial blood glucose levels in both experimental and control groups before and after intervention the average score are calculated. Based on the post pradial blood glucose levels those were graded as normal, mild, moderate, severe, and very severe.

Table 4.3: Assessment of post prandial blood glucose level of patients with type II diabetes in the experimental and control group: (Before intervention)

S.No	PPBG level scoring	Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
1	Normal (<140)	4	13%	3	10%
2	Mild (141-210)	6	20%	9	30%
3	Moderate (211-280)	8	27%	8	27%
4	Severe (281-350)	11	36.67%	7	23%
5	Very severe (>351)	1	3.33%	3	10%
	Total	**30**	**100%**	**30**	**100%**

The above table 3 showing the frequency and percentage distribution of patients according to the post prandial blood glucose level patients with type II diabetes in the experimental and control group: (Before intervention).

Fig 4.6: Cylindrical diagram showing the distribution of post prandial blood glucose level of patients with type II diabetes in the experimental and control group: (Before intervention):



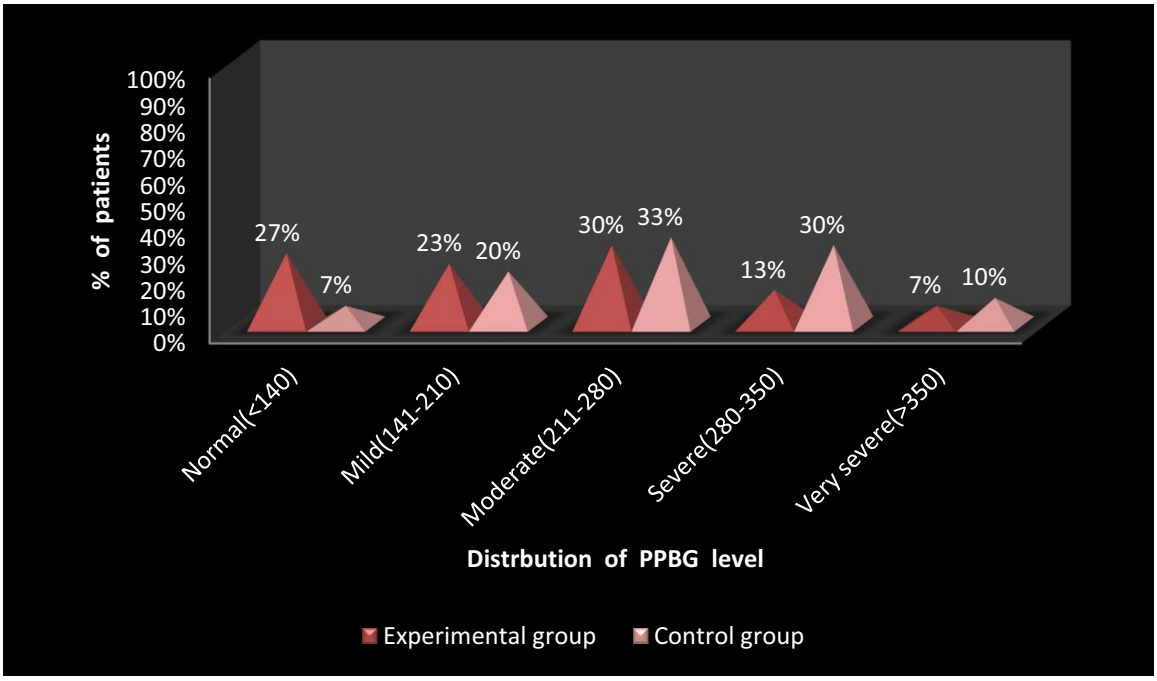
That data presented in the above diagram is that according to the post prandial blood glucose level of patients, in experimental group 4(13%) of patients had normal post prandial blood glucose level, 6(20%) of patients had mild post prandia blood glucose level, 8(27%) of patients had moderate post prandial blood glucose level, 11(36.67%) of the patients had severe post prandial blood glucose level and 1(3.33%) of patient had very severe post prandial blood glucose level. Similarly, in control group . 3(7%) of patients had normal post prandial blood glucose level , 9(30%) of patients had mild post prandial blood glucose level ,8(27%) of samples had moderate post prandial blood glucose level 7(23%) of the samples had severe post prandial blood glucose level and 3(10%) of the samples had very severe post prandial blood glucose level.

Table 4.4: Assessment of post prandial blood glucose level of patients with type II diabetes in the experimental and control group: (After intervention)

S.No	PPBG level scoring	Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
1	Normal (<140)	8	27%	2	7%
2	Mild (141-210)	7	23%	6	20%
3	Moderate (211-280)	9	30%	10	33%
4	Severe (281-350)	4	13%	9	30%
5	Very severe(>351)	2	7%	3	10%
	Total	**30**	**100%**	**30**	**100%**

The above table 4 showing the frequency and percentage distribution of patients according to the post prandial blood glucose level in the experimental and control after intervention.

Fig 4.7: Pyramidal diagram showing the distribution of post prandial blood glucose level of patients with type II diabetes in the experimental and control group: (After intervention):



That data presented in the above diagram is that according to the post prandial blood glucose level of patients, in experimental group 8(27%) of patients had normal post prandial blood glucose level, 7(23%) of clients had mild post prandia blood glucose level, 9(30%) of clients had moderate post prandial blood glucose level, 4(13%) of the samples had severe post prandial blood glucose level and 2(7%) of clients had very severe post prandial blood glucose level. Similarly, in control group . 2(7%) of clients had normal post prandial blood glucose level , 6(20%) of clients had mild post prandial blood glucose level ,10(33%) of clients had moderate post prandial blood glucose level 9(30%) of the clients had severe post prandial blood glucose level and 3(10%) of the clients had very severe post prandial blood glucose level.

Table 4.5: Score of postprandial blood glucose level of experimental group:

PPBG level score	Over all score	Pre-test score			Post-test score		
		Mean	Mean %	SD	Mean	Mean %	SD
	5	2.966	59%	1.129	2.533	50.66%	1.074

The above table 4 showing the result of the experimental group of patients with type II diabetes postprandial blood glucose level of pre-test and post-test overall score. Before implementation the score was high and after implementation the postprandial blood glucose scoring was reduced. Overall postprandial blood glucose level score showing decreased from 59% - 50.66%.

Fig 4.8 : Pyramidal diagram showing the score of postprandial blood glucose level of experimental group:

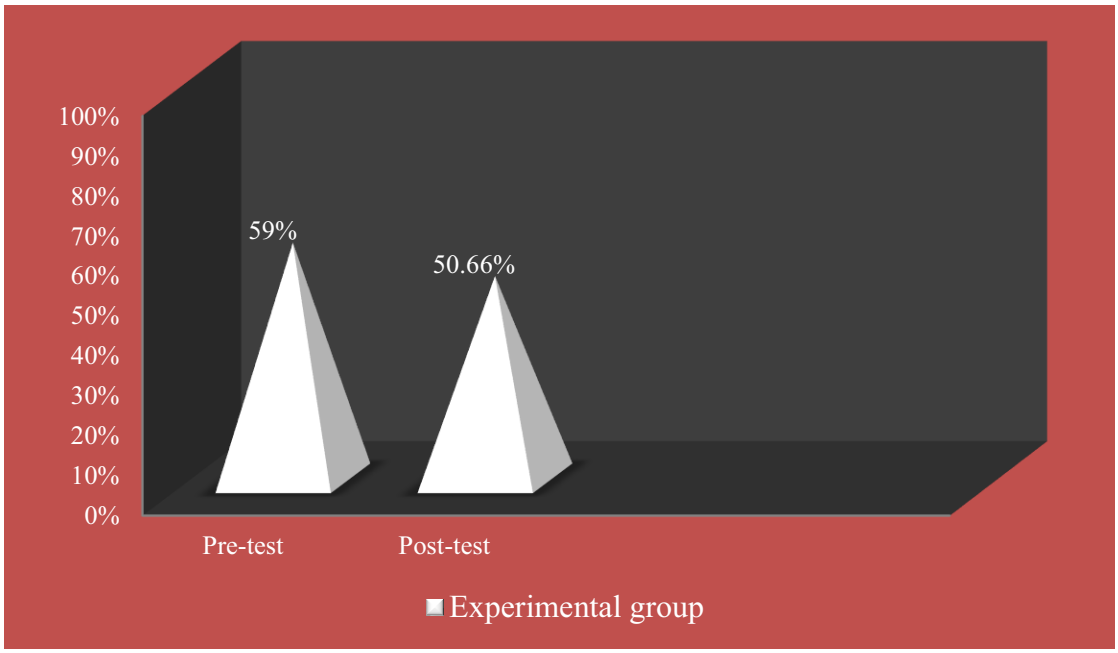
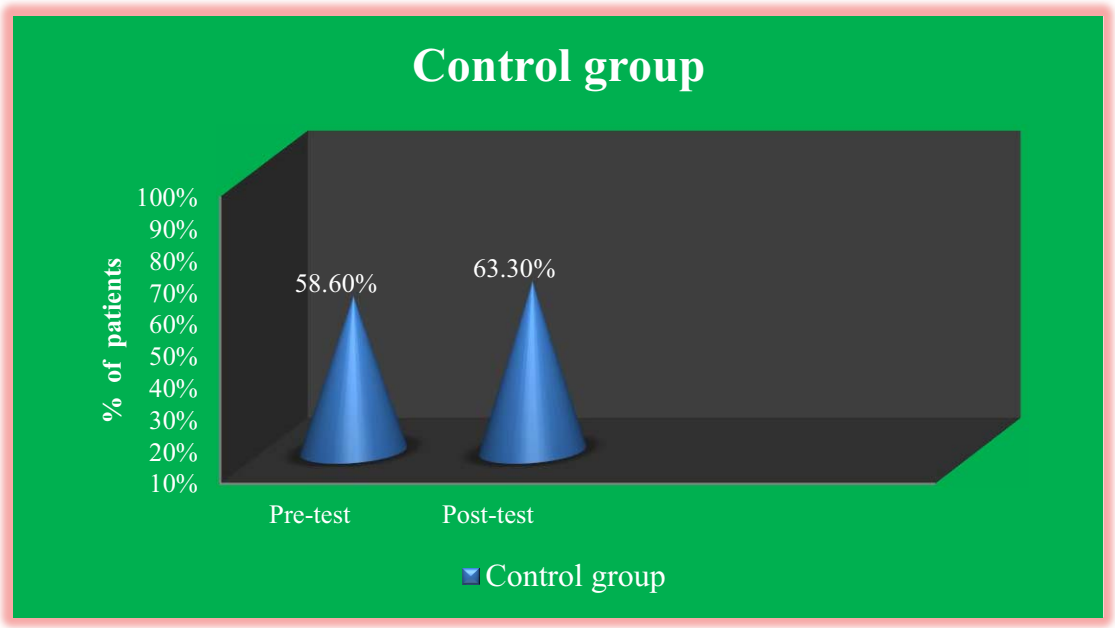


Table 4.6:Score of postprandial blood glucose level of control group:

PPBG level score	Over all score	Pre-test score			Post-test score		
		Mean	Mean %	SD	Mean	Mean %	SD
	5	2.933	58.6%	1.172	3.166	63.3%	1.085

The above table 5 showing the result of the control group of patients with type II diabetes postprandial blood glucose level of pre-test and post-test overall score. Before implementation the score was high and after implementation the postprandial blood glucose scoring was not at all reduced and postprandial blood glucose level score showing increased from 58.6% - 63.3%.

Fig 4.9: Conical diagram showing the score of postprandial blood glucose level score of control group:



The overall table concluded that the effectiveness of amla juice in patients with type II diabetes which reduces the blood glucose level, after consuming , the blood glucose level reveals the net benefit of this study which indicates the effectiveness of amla juice administration.

Table 4.7: Paired 't' test showing significant difference between post prandial blood glucose level of patients with type II diabetes in experimental group:

Experimental group	Overall score	Mean	Mean %	SD	Effect	t test	P value
Pre-test	5	2.966	59%	1.129	8.34	3.971	P<0.05 significant
post-test	5	2.533	50.66%	1.074			

The above table reveals that in experimental group the pre-test mean score was 2.966,mean % was 59% and standard deviation was 1.129 and in the post- test mean score was 2.533, mean % was 50.66% and standard deviation was 1.074 with the effectiveness of 8.34% and paired ' t' test value of t=3.971 So it is considered as significant.

Table 4.8: Paired 't' test showing significant difference between post prandial blood glucose level of patients with type II diabetes in control group:

Control group	Overall score	Mean	Mean %	SD	Effect	t test	P value
Pre-test	5	2.933	58.6%	1.172	4.7	1.756	P>0.05 Not significant
post-test	5	3.166	63.3%	1.085			

The above table reveals that in control group the pre-test mean score was 2.933,mean % was 58.6% and standard deviation was 1.172 and in the post- test mean score was 3.166, mean % was 63.3% and standard deviation was 1.085 with the decreased effectiveness of 4.7% and paired ‘ t’ test value of t=1.756 So it is considered as not significant.

Fig 4.10: Cylindrical diagram showing the effectiveness of amla juice in post prandial blood glucose levels of patients with type II diabetes in experimental group and control group:

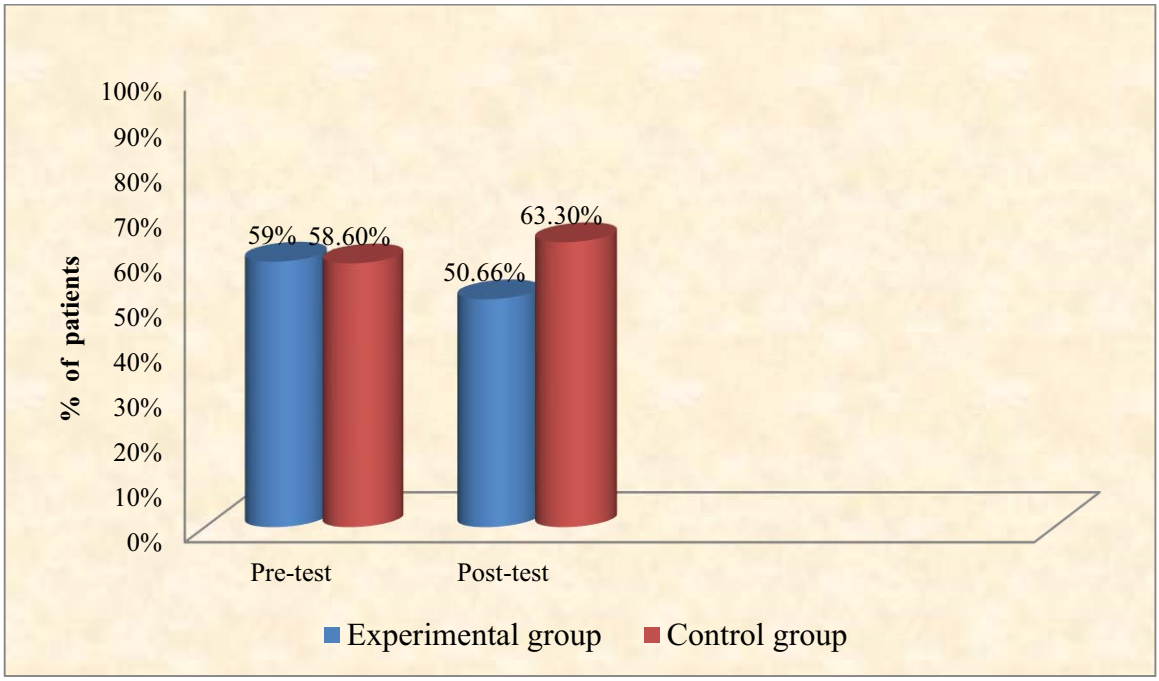
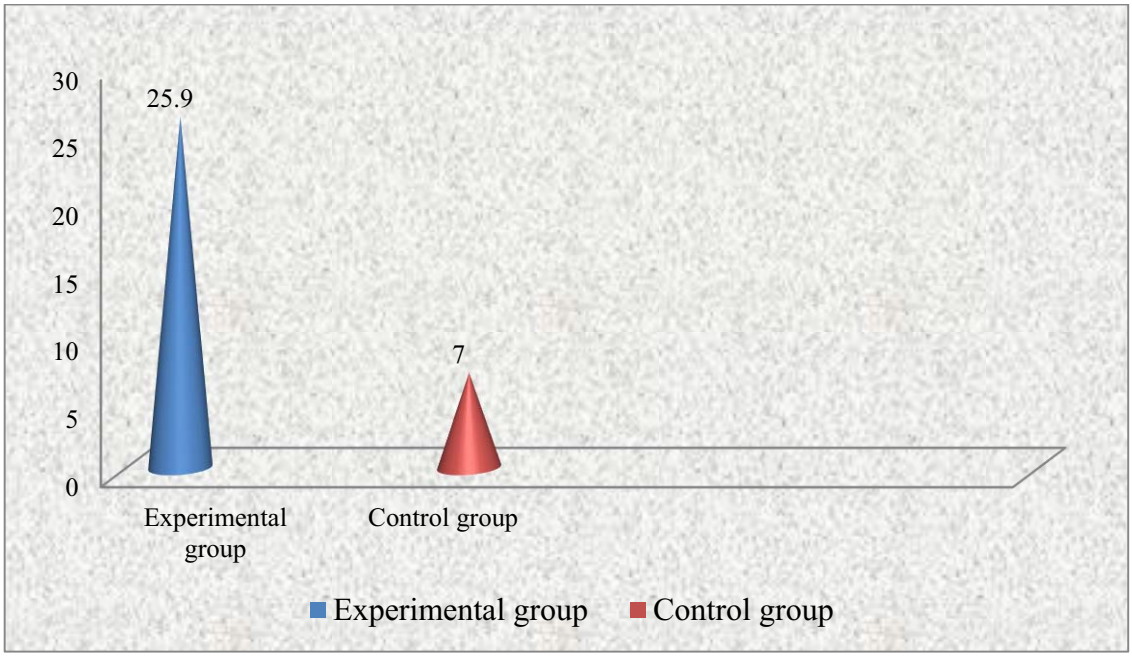


Table 4.9: Unpaired 't' test showing the comparison between the post prandial blood glucose levels in experimental and control group:

Group	Mean	SD	Mean Difference	't' value	Significant
Experimental group	25.9	17.60	18.9	13.39	P<0.05 Highly significant
Control group	7	6.89			

Fig 4.11: Conical diagram showing Unpaired 't' test showing the comparison between the post prandial blood glucose levels in experimrntal and control group:



Thus the interpreted value shown are statistically highly significant, which was observed from the unpaired 't' test value of 13.39 with the P value of < 0.05.

SECTION-III:

ASSOCIATION BETWEEN DEMOGRAPHIC VARIABLES AND CLINICAL VARIABLES WITH THE POST PRANDIAL BLOOD GLUCOSE LEVEL PATIENTS WITH TYPE II DIABETES IN EXPERIMENTAL AND CONTROL GROUP:

Table 4.10 : Association between demographic variables and post prandial blood glucose level of patients with type II diabetes (experimental group –pre-test):

This section deals with the association between the experimental group of patients with type II diabetes pre test post prandial blood glucose level and their gain score with their demographic variables.

Experimental group(pre -test)											
Demographic variables	**Normal**		**Mild**		**Moderate**		**Severe**		**Very severe**		**Chi-square**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Age in years											
30-40	1	3.33	0	0.00	0	0.00	5	16.67	0	0.00	X^2 =5.759
41-50	0	0.00	4	13.33	4	13.33	2	6.67	0	0.00	df=12
51-60	2	6.67	1	3.33	4	13.33	3	10.00	1	3.33	p>0.05 Not
>60	1	3.33	1	3.33	0	0.00	1	3.33	0	0.00	significant
Gender											X^2=1.587
Male	2	6.67	2	6.67	4	13.33	6	20.00	0	0.00	df=4
Female	2	6.67	4	13.33	4	13.33	5	16.67	1	3.33	p>0.05 Not significant
Marital status											
Married	3	10.00	3	10.00	6	20.00	6	20.00	1	3.33	X^2=11.785
Unmarried	0	0.00	0	0.00	2	6.67	3	10.00	0	0.00	df=12
Divorced	1	3.33	1	3.33	0	0.00	0	0.00	0	0.00	p>0.05 Not
Widow/Widower	0	0.00	2	6.67	0	.00	2	6.67	0	0.00	significant
Religion											X^2=10.24
Hindu	3	10.0	3	10.00	5	16.67	3	10.00	1	3.33	df=12

Christian	0	0.00	2	6.67	2	6.67	8	26.67	0	0.00	p>0.05
Muslim	1	3.33	1	3.33	0	0.00	0	0.00	0	0.00	Not
Others	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	significant
Education											X^2=18.01
Uneducated	0	0.00	0	0.00	2	6.67	0	0.00	0	0.00	df=16
Primary	0	0.00	1	3.33	2	6.67	3	10.00	1	3.33	p>0.05 Not
High school	2	6.67	1	3.33	2	6.67	3	10.00	0	0.00	significant
Higher secondary	1	3.33	2	6.67	0	0.00	4	13.33	0	0.00	
Graduate and above	1	3.33	2	6.67	2	6.67	1	3.33	0	0.00	
Income											X^2=15.895
<5000	3	10.00	3	10.00	2	6.67	3	10.00	1	3.33	df=12
5001-10000	0	0.00	2	6.67	3	10.00	5	16.67	0	0.00	p>0.05 Not
10001-15000	1	3.33	1	3.33	0	0.00	3	10.00	0	0.00	significant
>15000	0	0.00	0	0.00	3	10.00	0	0.00	0	0.00	
Occupation											X^2=5.99
Business	1	3.33	2	6.67	1	3.33	4	13.33	0	0.00	df=12
Govt .employee	1	3.33	1	3.33	2	6.67	2	6.67	0	0.00	p>0.05 Not
Private sector	2	6.67	1	3.33	3	10.00	3	10.00	0	0.00	significant
Others	1	3.33	2	6.67	1	3.33	2	6.67	1	3.33	
Dietary habits											X^2=7.167
Vegetarian	3	10.00	0	0.00	0	0.00	2	6.67	0	0.00	df=4
Non vegetarian	1	3.33	6	20.00	8	26.67	9	30.00	1	3.33	p>0.05 Not
											significant
On regular exercise											X^2=1.6915
Yes	2	6.67	3	10.00	5	16.67	8	26.67	1	3.33	df=4
No	2	6,67	3	10.00	3	10.00	3	10.00	0	0.00	p>0.05 Not
											significant

The above table showing that none of the demographic variables are significantly associated with their post prandial blood glucose level. It was calculated by using pearson chi-square.

Table 4.11 : Association between demographic variables and post prandial blood glucose level of patients with type II diabetes (experimental group –post-test):

Experimental group(post -test)											
Demographic variables	**Normal**		**Mild**		**Moderate**		**Severe**		**Very severe**		**Chi-square**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Age in years											
30-40	2	6.67	0	0.00	2	6.67	1	3.33	1	3.33	X^2 =5.580
41-50	2	6.67	3	10.00	4	13.33	1	3.33	0	0.00	df=12
51-60	3	10.00	3	10.00	2	6.67	2	6.67	1	3.33	p>0.05 Not
>60	1	3.33	1	3.33	1	3.33	0	0.00	0	0.00	significant
Gender											X^2=1.126
Male	4	13.33	3	10.00	5	16.67	1	3.33	1	3.33	df=4
Female	4	13.33	4	13.33	4	13.33	3	10.00	1	3.33	p>0.05 Not significant
Marital status											
Married	6	20.00	4	13.33	6	20.00	2	6.67	1	3.33	X^2=15.750
Unmarried	1	3.33	0	0.00	2	6.67	2	6.67	0	0.00	df=12
Divorced	1	3.33	0	0.00	1	3.33	0	0.00	0	0.00	p>0.05 Not
Widow/Widower	0	0.00	3	10.00	0	0.00	0	0.00	1	3.33	significant
Religion											X^2=7.723
Hindu	6	20.00	3	10.00	4	13.33	1	3.33	1	3.33	df=8
Christian	1	3.33	4	13.33	3	10.00	3	10.00	1	3.33	p>0.05
Muslim	1	3.33	0	0.00	2	6.67	0	0.00	0	0.00	Not
Others	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	significant
Education											X^2=17.343
Uneducated	0	0.00	0	0.00	2	6.67	0	0.00	0	0.00	df=16
Primary	1	3.33	2	6.67	2	6.67	2	6.67	0	0.00	p>0.05 Not
High school	2	6.67	2	6.67	3	10.00	1	3.33	0	0.00	significant
Higher secondary	2	6.67	2	6.67	0	0.00	1	3.33	2	6.67	

Graduate and above	3	10.00	1	3.33	2	6.67	0	0.00	0	0.00	
Income											X^2=11.516 df=12 p>0.05 Not significant
<5000	4	13.33	2	6.67	3	10.00	1	3.33	2	6.67	
5001-10000	1	3.33	3	10.00	5	16.67	1	3.33	0	0.00	
10001-15000	2	6.67	1	3.33	0	0.00	2	6.67	0	0.00	
>15000	1	3.33	1	3.33	1	3.33	0	0.00	0	0.0	
Occupation											X^2=11.374 df=12 p>0.05 Not significant
Business	2	6.67	4	13.33	1	3.33	1	3.33	0	0.00	
Govt .employee	2	6.67	0	0.00	3	10.00	1	3.33	0	0.00	
Private sector	2	6.67	2	6.67	4	13.33	0	0.00	1	3.33	
Others	2	6.67	1	3.33	1	3.33	2	6.67	1	3.33	
Dietary habits											X^2=4.700 df=4 p>0.05 Not significant
Vegetarian	3	10.00	0	0.00	1	3.33	1	3.33	0	0.00	
Non vegetarian	5	16.67	7	23.33	8	26.67	3	10.00	2	6.67	
On regular exercise											X^2=0.9619 df=4 p>0.05 Not significant
Yes	6	20.00	5	16.67	6	20.00	3	10.00	2	6.67	
No	2	6,67	2	6.67	3	10.00	1	3.33	0	0.00	

The above table showing the association between demographic variables and the post test level of post prandial blood glucose level score among experimental group of patients with type II diabetes.None of the demographic variables are significantly associated with their post prandial blood glucose level. It was calculated by using pearson chi-square test .

Table 4.12 : Association between clinical variables and post prandial blood glucose level of patients with type II diabetes (experimental group –pre-test):

Experimental group(pre-test)											
Clinical variables	**Normal**		**Mild**		**Moderate**		**Severe**		**Very severe**		**Chi-square**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Duration of illness											
<1year	0	0.00	0	0.00	1	3.33	4	13.33	1	3.33	X^2 =14.104
1-2year	0	0.00	1	3.33	1	3.33	4	13.33	0	0.00	df=8
>2year	4	13.33	5	16.67	6	20.00	3	10.00	0	0.00	p>0.05 Not
Weight in Kgs											significant
31-40	0	0.00	1	3.33	2	6.67	0	0.00	0	0.00	X^2=15.255
41-50	2	6.67	0	0.00	1	3.33	4	13.33	0	0.00	df=12
51-60	2	6.67	2	6.67	2	6.67	6	20.00	0	0.00	p>0.05 Not
>60	0	0.00	3	10.00	3	10.00	1	3.33	1	3.33	significant
BMI											
<18.4	0	0.00	1	3.33	2	6.67	0	0.00	0	0.00	X^2=15.255
18.5-22.5	2	6.67	0	0.00	1	3.33	4	13.33	0	0.00	df=12
22.6-29.9	2	6.67	2	6.67	2	6.67	6	20.00	0	0.00	p>0.05 Not
>30	0	0.00	3	10.00	3	10.00	1	3.33	1	3.33	significant
Family history of diabetes											X^2=22.934
Yes:Father	0	0.00	3	10.00	1	3.33	3	10.00	0	0.00	df=6
Mother	0	0.00	1	3.33	5	16.67	0	0.00	0	0.00	p>0.05
Uncle	1	3.33	0	0.00	0	0.00	1	3.33	0	0.00	Not
Other relation	0	0.00	0	0.00	0	0.00	2	6.67	0	0.00	significant
No	3	10.00	2	6.67	2	6.67	5	16.67	1	3.33	

Management of illness											X^2=1.765 df=4 p>0.05 Not significant
Diet& exercise	0	0.00	0	0.00	0	0.00	0	0.00	0	0./00	
Insulin	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
OHA's	2	6.67	3	10.00	3	10.00	3	10.00	0	0.00	
Higher secondary	2	6.67	3	10.00	5	16.67	8	26.67	1	3.33	

The above table showing the association between clinical variables and the pre test level of post prandial blood glucose level score among experimental group of patients with type II diabetes. None of the clinical variables are significantly associated with their post prandial blood glucose level. It was calculated by using pearson chi-square test .

Table 4.13 : Association between clinical variables and post prandial blood glucose level of patients with type II diabetes (experimental group –post-test):

Experimental group(post -test)											
Clinical variables	**Normal**		**Mild**		**Moderate**		**Severe**		**Very severe**		**Chi-square**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Duration of illness											
<1year	2	6.67	1	3.33	1	3.33	1	3.33	1	3.33	X^2 =6.971
1-2year	1	3.33	0	0.00	3	10.00	1	3.33	1	3.33	df=8
>2year	5	16.67	6	20.00	5	16.67	2	6.67	0	0.00	p<0.05
Weight in Kgs											significant
31-40	2	6.67	1	3.33	0	0.00	0	0.00	0	0.00	X^2=13.539
41-50	2	6.67	1	3.33	2	6.67	2	6.67	0	0.00	df=12
51-60	2	6.67	1	3.33	5	16.67	2	6.67	2	6.67	p>0.05 Not
>60	2	6.67	4	13.33	2	6.67	0	0.00	0	0.00	significant
BMI											
<18.4	2	6.67	1	3.33	0	0.00	0	0.00	0	0.00	X^2=13.539
18.5-22.5	2	6.67	1	3.33	2	6.67	2	6.67	0	0.00	df=12
22.6-29.9	2	6.67	1	3.33	5	16.67	2	6.67	2	6.67	p>0.05 Not
>30	2	6.67	4	13.33	2	6.67	0	0.00	0	0.00	significant
Family history of diabetes											X^2=11.670
Yes:Father	3	10.00	1	3.33	2	6.67	1	3.33	0	0.00	df=16
Mother	1	3.33	2	6.67	3	10.00	0	0.00	0	0.00	p>0.05
Uncle	1	3.33	0	0.00	1	3.33	0	0.00	0	0.00	Not
Other relation	0	0.00	0	0.00	1	3.33	1	3.33	0	0.00	significant
No	3	10.00	4	13.33	2	6.67	2	6.67	2	6.67	

Management of illness											X^2=3.336 df=4 p>0.05 Not significant
Diet& exercise	0	0.00	0	0.00	0	0.00	0	0.00	0	0./00	
Insulin	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
OHA's	2	6.67	3	10.00	3	10.00	0	0.00	0	0.00	
Higher secondary	2	6.67	4	13.33	6	20.00	4	13.33	2	6.67	

The above table showing the association between clinical variables and the post test level of post prandial blood glucose level score among experimental group of patients with type II diabetes. Duration of illness is significantly associated with their post prandial blood glucose level. The other clinical variables are not significantly associated with their post prandial blood glucose level. It was calculated by using pearson chi-square test .

Table 4.14 : Association between demographic variables and post prandial blood glucose level of patients with type II diabetes (control group –pre-test):

Control group(pre -test)											
Demographic variables	**Normal**		**Mild**		**Moderate**		**Severe**		**Very severe**		**Chi-square**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Age in years											
30-40	2	6.67	3	10.00	1	3.33	1	3.33	0	0.00	X^2 =14.523
41-50	0	0.00	0	0.00	5	16.67	2	6.67	1	3.33	df=12
51-60	1	3.33	3	10.00	1	3.33	3	10.00	1	3.33	p>0.05 Not
>60	0	0.00	3	10.00	1	3.33	1	3.33	1	3.33	significant
Gender											X^2=5.178
Male	0	0.00	3	10.00	4	13.33	5	16.67	1	3.33	df=4
Female	3	10.00	6	20.00	4	13.33	2	6.67	2	6.67	p>0.05 Not significant
Marital status											
Married	3	10.00	5	16.67	6	20.00	3	10.00	3	10.00	X^2=8.472
Unmarried	0	0.00	2	6.67	1	3.33	3	10.00	0	0.00	df=12
Divorced	0	0.00	1	3.33	0	0.00	1	3.33	0	0.00	p>0.05 Not
Widow/Widower	0	0.00	1	3.33	1	3.33	0	0.00	0	0.00	significant
Religion											X^2=2.937
Hindu	1	3.33	6	20.00	5	16.67	5	16.67	1	3.33	df=8
Christian	1	3.33	1	3.33	2	6.67	1	3.33	1	3.33	p>0.05
Muslim	1	3.33	2	6.67	1	3.33	1	3.33	1	3.33	Not
Others	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	significant
Education											X^2=19.193
Uneducated	0	0.00	0	0.00	3	10.00	1	3.33	0	0.00	df=16
Primary	0	0.00	3	10.00	0	0.00	1	3.33	2	6.67	p>0.05 Not
High school	1	3.33	2	6.67	2	6.67	1	3.33	1	3.33	significant
Higher secondary	0	0.00	2	6.67	2	6.67	3	10.00	0	0.00	

Graduate and above	2	6.67	2	6.67	1	3.33	1	3.33	0	0.00	
Income											X^2=8.818
<5000	0	0.00	3	10.00	4	13.33	2	6.67	2	6.67	df=12
5001-10000	1	3.33	3	10.00	3	10.00	1	3.33	1	3.33	p>0.05 Not
10001-15000	1	3.33	2	6.67	0	0.00	3	10.00	0	0.00	significant
>15000	1	3.33	1	3.33	1	3.33	1	3.33	0	0.00	
Occupation											X^2=16.632
Business	1	3.33	3	10.00	1	3.33	0	0.00	0	0.00	df=12
Govt .employee	2	6.67	0	0.00	1	3.33	0	0.00	0	0.00	p>0.05 Not
Private sector	0	0.00	3	10.00	2	6.67	3	10.00	0	0.00	significant
Others	0	0.0	3	10.00	4	13.33	4	13.33	1	3.33	
Dietary habits											X^2=1.909
Vegetarian	0	0.00	1	3.33	2	6.67	1	3.33	0	0.00	df=4
Non vegetarian	3	10.00	8	26.67	6	20.00	6	20.00	3	10.00	p>0.05 Not significant
On regular exercise											X^2=0.1897
Yes	2	6.67	6	20.00	5	16.67	4	13.33	2	6.67	df=4
No	1	3.33	3	10.00	3	10.00	3	10.00	1	3.33	p>0.05 Not significant

The above table showing the association between demographic variables and the pre-test level of post prandial blood glucose level score among control group of patients with type II diabetes. None of the demographic variables are significantly associated with their post prandial blood glucose level. It was calculated by using pearson chi-square test .

Table 4.15 : Association between demographic variables and post prandial blood glucose level of patients with type II diabetes (control group –post-test):

Control group(post-test)											
Demographic variables	**Normal**		**Mild**		**Moderate**		**Severe**		**Very severe**		**Chi-square**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Age in years											
30-40	1	3.33	2	6.67	3	10.00	0	0.00	1	3.33	X^2 =14.212
41-50	0	0.00	0	0.00	4	13.33	4	13.33	0	0.00	df=12
51-60	1	3.33	3	10.00	0	0.00	4	13.33	1	3.33	p>0.05 Not
>60	0	0.00	1	3.33	3	10.00	1	3.33	1	3.33	significant
Gender											X^2=2.624
Male	1	3.33	1	3.33	5	16.67	5	16.67	2	6.67	df=4
Female	1	3.33	5	16.67	5	16.67	5	16.67	1	3.33	p>0.05 Not significant
Marital status											
Married	2	6.67	5	16.67	6	20.00	3	10.00	3	10.00	X^2=7.267
Unmarried	0	0.00	2	6.67	1	3.33	3	10.00	0	0.00	df=12
Divorced	0	0.00	1	3.33	0	0.00	1	3.33	0	0.00	p>0.05 Not
Widow/Widower	0	0.00	1	3.33	1	3.33	0	0.00	0	0.00	significant
Religion											X^2=5.667
Hindu	0	0.00	3	10.00	7	23.33	6	20.00	2	6.67	df=8
Christian	1	3.33	1	3.33	2	6.67	2	6.67	1	3.33	p>0.05
Muslim	1	3.33	2	6.67	1	3.33	1	3.33	0	0.00	Not
Others	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	significant
Education											X^2=10.893
Uneducated	0	0.00	1	3.33	2	6.67	1	3.33	0	0.00	df=16
Primary	0	0.00	1	3.33	1	3.33	3	10.00	1	3.33	p>0.05 Not
High school	0	0.00	2	6.67	2	6.67	2	6.67	1	3.33	significant
Higher secondary	1	3.33	0	0.00	2	6.67	3	10.00	1	3.33	

Graduate and above	1	3.33	2	6.67	3	10.00	0	0.00	0	0.00	
Income											X^2=7.412 df=12 p>0.05 Not significant
<5000	0	0.00	2	6.67	4	13.33	4	13.33	1	3.33	
5001-10000	0	0.00	1	3.33	4	13.33	3	10.00	1	3.33	
10001-15000	1	3.33	2	6.67	1	3.33	1	3.33	1	3.33	
>15000	1	3.33	1	3.33	1	3.33	1	3.33	0	0.00	
Occupation											X^2=10.304 df=12 p>0.05 Not significant
Business	1	3.33	2	6.67	1	3.33	1	3.33	0	0.00	
Govt .employee	0	0.00	2	6.67	1	3.33	0	0.00	1	3.33	
Private sector	0	0.00	1	3.33	3	10.00	4	13.33	1	3.33	
Others	1	3.33	1	3.33	5	16.67	4	13.33	1	3.33	
Dietary habits											X^2=5.481 df=4 p>0.05 Not significant
Vegetarian	0	0.00	1	3.33	0	0.00	3	10.00	0	0.00	
Non vegetarian	2	6.67	5	16.67	10	33.33	6	20.00	3	10.00	
On regular exercise											X^2=0.2871 df=4 p>0.05 Not significant
Yes	1	3.33	4	13.33	6	20.00	6	20.00	2	6.67	
No	1	3.33	2	6.67	4	13.33	3	10.00	1	3.33	

The above table showing the association between demographic variables and the post-test level of post prandial blood glucose level score among control group of patients with type II diabetes. None of the demographic variables are significantly associated with their post prandial blood glucose level. It was calculated by using pearson chi-square test .

Table 4.16 : Association between clinical variables and post prandial blood glucose level of patients with type II diabetes (Control group –pre-test):

Control group(pre-test)											
Clinical variables	**Normal**		**Mild**		**Moderate**		**Severe**		**Very severe**		**Chi-square**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Duration of illness											
<1year	0	0.00	3	10.00	2	6.67	1	3.33	0	0.00	X^2 =6.306 df=8 p>0.05 Not significant
1-2year	2	6.67	2	6.67	1	3.33	1	3.33	1	3.33	
>2year	1	3.33	4	13.33	5	16.67	5	16.67	2	6.67	
Weight in Kgs											
31-40	0	0.00	1	3.33	1	3.33	0	0.00	0	0.00	X^2=9.827 df=12 p>0.05 Not significant
41-50	0	0.00	1	3.33	3	10.00	1	3.33	1	3.33	
51-60	0	0.00	2	6.67	2	6.67	3	10.00	1	3.33	
>60	4	13.33	5	16.67	2	6.67	3	10.00	1	3.33	
BMI											
<18.4	0	0.00	1	3.33	1	3.33	0	0.00	0	0.00	X^2=8.638 df=12 p>0.05 Not significant
18.5-22.5	0	0.00	1	3.33	3	10.00	1	3.33	1	3.33	
22.6-29.9	0	0.00	2	6.67	2	6.67	3	10.00	1	3.33	
>30	3	10.00	5	16.67	2	6.67	3	10.00	1	3.33	
Family history of diabetes											X^2=9.892 df=16 p>0.05 Not significant
Yes:Father	0	0.00	2	6.67	1	3.33	2	6.67	1	3.33	
Mother	0	0.00	2	6.67	1	3.33	1	3.33	1	3.33	
Uncle	0	0.00	1	3.33	2	6.67	0	0.00	0	0.00	
Other relation	0	0.00	0	0.00	1	3.33	1	3.33	0	0.00	
No	3	10.00	4	13.33	3	10.00	3	10.00	1	3.33	

Management of illness											X^2=0.1897 df=4 p>0.05 Not significant
Diet& exercise	0	0.00	0	0.00	0	0.00	0	0.00	0	0./00	
Insulin	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
OHA's	1	3.33	3	10.00	3	10.00	3	10.00	1	3.33	
Higher secondary	2	6.67	6	20.00	5	16.67	4	13.33	2	6.67	

The above table showing the association between clinical variables and the pre test level of post prandial blood glucose level score among control group of patients with type II diabetes. None of the clinical variables are significantly associated with their post prandial blood glucose level. It was calculated by using pearson chi-square test .

Table 4.17 : Association between clinical variables and post prandial blood glucose level of patients with type II diabetes (Control group –post-test):

Control (post -test)											
Clinical variables	**Normal**		**Mild**		**Moderate**		**Severe**		**Very severe**		**Chi-square**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Duration of illness											
<1year	0	0.00	2	6.67	2	6.67	2	6.67	0	0.00	X^2 =5.847 df=8 p<0.05 significant
1-2year	1	3.33	1	3.33	2	6.67	1	3.33	2	6.67	
>2year	1	3.33	3	10.00	6	2.00	6	2.00	1	3.33	
Weight in Kgs											
31-40	0	0.00	1	3.33	1	3.33	0	0.00	0	0.00	X^2=6.935 df=12 p>0.05 Not significant
41-50	0	0.00	0	0.00	2	6.67	3	10.00	1	3.33	
51-60	1	3.33	2	6.67	2	6.67	3	10.00	0	0.00	
>60	1	3.33	3	10.00	5	16.67	3	10.00	2	6.67	
BMI											
<18.4	0	0.00	1	3.33	1	3.33	0	0.00	0	0.00	X^2=6.935 df=12 p>0.05 Not significant
18.5-22.5	0	0.00	0	0.00	2	6.67	3	10.00	1	3.33	
22.6-29.9	1	3.33	2	6.67	2	6.67	3	10.00	0	0.00	
>30	1	3.33	3	10.00	5	16.67	3	10.00	2	6.67	
Family history of diabetes											X^2=12.114 df=16 p>0.05 Not significant
Yes:Father	0	0.00	2	6.67	1	3.33	1	3.33	2	6.67	
Mother	0	0.00	0	0.00	2	6.67	3	10.00	0	0.00	
Uncle	0	0.00	1	3.33	1	3.33	1	3.33	0	0.00	
Other relation	0	0.00	0	0.00	1	3.33	1	3.33	0	0.00	
No	2	6.67	3	10.00	5	16.67	3	10.00	1	3.33	

Management of illness											X^2=0.2871 df=4 p>0.05 Not significant
Diet& exercise	0	0.00	0	0.00	0	0.00	0	0.00	0	0./00	
Insulin	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
OHA's	1	3.33	2	6.67	4	13.33	3	10.00	1	3.33	
Higher secondary	1	3.33	4	13.33	6	20.00	6	20.00	2	6.67	

The above table showing the association between clinical variables and the post test level of post prandial blood glucose level score among control group of patients with type II diabetes. None of the clinical variables are significantly associated with their post prandial blood glucose level. It was calculated by using pearson chi-square test .

SECTION-IV:

ASSESSMENT OF THE LEVEL OF SATISFACTION:

This section deals with the assessment of the level of satisfaction among patients with type II diabetes in experimental group about amla juice.

Table 4.18: Level of satisfaction

No. of samples	Level of satisfaction	Percentage of satisfaction
14	Highly satisfied	47%
14	Moderately satisfied	47%
2	Satisfied	6%
0	Not satisfied	0%
30		**100%**

From above table it showing the level of satisfaction,14(47%) of the samples are highly satisfied and are moderately satisfied, 2(6%) of the samples are satisfied. So from this we can conclude that satisfactory level was high and also the patients with type II diabetes are satisfied with the amla juice.

Fig 4.12 : Pyramidal diagram showing the level of satisfaction

CHAPTER-V

DISCUSSION AND SUMMARY

CHAPTER V

DISCUSSION

"The only way to keep your health is to eat what you don't want, drink what you don't like, and do what you'd rather not"

-MARK TWAIN

This chapter discuss the main finding of the research study and reviews that in selection the finding from the result of the present study. For \this study the data was obtained regarding the effect of amla juice on blood glucose level among patients with type II diabetes in a selected area at Namakkal district.

STATEMENT OF THE PROBLEM:

" A STUDY TO ASSESS THE EFFECTIVENESS OF AMLA JUICE IN REDUCING BLOOD SUGAR AMONG PATIENTS WITH TYPE II DIABETES IN A SELECTED AREA AT NAMAKKAL DISTRICT".

OBJECTIVES:

5) To assess the post prandial blood glucose level of patients with type II diabetes.
6) To evaluate the effectiveness of amla juice consumption on the level of post prandial blood glucose level of patients with type II diabetes.
7) To find out the association between the demographic an clinical variable with the post prandial blood glucose level of patients with type II diabetes.
8) To assess the level of satisfaction among patients with type II Diabetes in experimental group about amla juice administration.

1. To assess the post prandial blood glucose level of patients with type II diabetes.

Based on the above objective of the study to assess the post prandial blood glucose level of patients with diabetes mellitus in relation to findings of the experimental and control group before and after administration.

The study result showing the pre test score of the experimental and control group. In experimental group, the post prandial blood glucose level scoring was 13% in normal, 20% in mild, 27% in moderate, 30% in severe, 10% in very sever level. In control group, 10% in normal, 30% in mild, 27% in moderate, 23% in severe and 10% in very level.

The post test score of the experimental group, the post prandial blood glucose level scoring was 27%% in normal, 23% in mild, 30%% in moderate, 13% in severe, 7% in very severe levels. In control group, 7% in normal, 20% in mild, 33% in moderate, 30% in severe and 10% in very levels

Thus in the experimental group, there is effect on change in the post prandial blood glucose level score after post test. But in the control group, there is no change in the post prandial blood glucose level score after post test.

2. To evaluate the effectiveness of amla juice consumption on the level of post prandial blood glucose level of patients with type II diabetes.

The computed paired 't' test value is 3.791 at 5% level p(>0.05) depicts that there is a significant difference between the post prandial blood glucose level among experimental group.

The computed paired 't' test value is 1.756 at 5% level p(<0.05) depicts that there is a no significant difference between the post prandial blood glucose level among control group.

The computed unpaired 't' test value is 13.39 at 5% level p(>0.05) depicts that there is a highly significant difference between the post prandial blood glucose level among experimental and control group.

3. To find out the association between the demographic an clinical variable with the post prandial blood glucose level of patients with type II diabetes.

The calculated x^2 values of all demographic and clinical variables of experimental group are not higher than the tabled value. It showing that non significant association between the prandial blood glucose level of patients with type II diabetes in experimental group.

The calculated x^2 values of all demographic and clinical variables of control group are not higher than the tabled value. It showing that non significant association between the prandial blood glucose level of patients with type II diabetes in control group.

4. To assess the level of satisfaction among patients with type II Diabetes in experimental group about amla juice administration.

The findings of the level of satisfaction was 47% of the patients were highly satisfied with amla juice, 47% were moderately satisfied, 6% were satisfied and none of the patients were not satisfied the amla juice.

RESULTS:

In experimental group the pre-test mean score was 2.966,mean percentage was 59% and standard deviation was 1.129 and in the post- test mean score was 2.533, mean percentage was 50.66% and standard deviation was 1.074 with the effectiveness of 8.34% and paired ' t' test

value of t=3.971 which was statistically significant ($p<0.05$) which is an evident for the effectiveness of amla juice in reducing blood glucose level.

The comparison between, blood glucose levels in experimental and control group, showing the value are statistically highly significant, which was observed from the unpaired 't' test value of 13.39 with the p value of <0.05, which is an evident for the effect of amla juice in reducing blood glucose levels.

Thereby, the researcher rejecting the null hypothesis

IMPLICATIONS OF THE STUDY:

The findings of the study has implication related to, nursing administration, nursing education, nursing practice and nursing research.

Nursing administration:

Type II diabetes mellitus is the commonest form of diabetic globally as well as in India. In India, diabetic is not an epidemic any more but has licensed into a pandemic according to the international journal of diabetic they labeled India the **"DIABETES CAPITAL OF THE WORLD"** so, increasing demands for quality care at low cost and availability, the nursing administrators are in a key position to prepare policies and its execution of quality nursing care based on research findings.

Nursing education:

Nursing education is a measure for motivating students for knowledge, skill and good attitudes for the prevention, promotion, early detection and management of illness. It is essential in the wake of recent statistics related to diabetic population in our country is more than 95%. So

that the nursing educational programs include the theoretical and practical aspect in the prevention, promotion and management of diabetic mellitus and prepares the aspiring professionals to function effectively. The nurse should be prepared to function in institutional as well as in community for promoting the patients with type II diabetes mellitus from the disease. The same should be applicable for preparing the nurse at higher levels of nursing education also. So, in nursing education syllabus administration of the complimentary therapies for diabetes can be included.

Nursing practice:

Nursing should be equipped with updated knowledge as in care of patients with type II diabetes. In 1990 St. Vincent declaration was the result of international effects to improve the care accorded to those with diabetes. so it is important both in quality of life and life expectancy but is also economically expensive due to diabetic, have been shown to be a major drain on health and productivity related resources for health care systems and governments.

The researcher can be propagated through mass media to improve the health status of patients with type II diabetes and in preventing further complications. The module can be used as a guide books by health personnel. So that they can contribute the matter to the public and make control over diabetic with no complications.

Nursing research:

Diabetic is a major disease and patients with type II diabetes should get adequate care. The study conducted to create an interest to other investigators to carry out further studies. So that some of the aspects which are not included in the present study can be more emphasized. So

the investigator recommends conducting periodic research on diabetic and its control by using other complementary therapies as a role of nurses.

RECOMMENDATIONS:

- A similar study can be under taken on a larger scale for a better generalization.
- The study can be replicated in different settings.
- The study can be conducted to assess the effectiveness of amla juice in the management of hyperlipidemia.

CONCLUSION:

The study assessed the effect of amla juice in reducing blood sugar level among patients with type II diabetes. The result found was that amla juice is having effect in reducing blood glucose level after administration of amla juice for the experimental group. By comparing with experimental group and control group by pretest and post test, the effect was identified (assessed). The study concluded that the amla juice is effective in reducing blood glucose level.

BIBLIOGRAPHY

BIBLIOGRAPHY

BOOKS:

1. Lewis' Medical surgical nursing: **"Assessment and management of clinical problems"**. Philadelphia: Mosby Elsevier Publication. Pg. 1246.

2. Black JM. **"Clinical management for positive outcome".** Volume-1. 7th edition. Philadelphia: Elsevier Publication. Pg. 1243-88.

3. International Diabetes Federation Atlas. 5th edition. IDF 2011. [online]. Available from: URL:http://www.ncbi.nim.nib.gov/pubmed/17496352.

4. Mohan V, Sandeep S, Deepa, Shah B, Varghese C. **"Epidemiology of type 2 diabetes: Indian scenario"**. Indian Journal of Medical Research 2007;Pg 217-230.

5. Nair KM, Varghese C**. "Incidence and prevalence of diabetes in world"**. [serial online] 2001 [cited 2001 Oct 27]. Available from: URL:http://www.who.com.

6. Khan K.H., **"Role of emblica officinalis in medicine review"**, J Botany Research International, Idosi publications, volume 2(4), (2009) Pg 218-228.

7. Sivaprakasam K, Rao KK, (1984), **"siddha remedy for diabetes mellitus",** 6thedition, Lippincott publication, Pg 25-32.

8. Baskaran. K.et.al., (1990), **"Antidiabetic effect of Indian gooseberry"**, 1st edition jayee Publications, Calcutta, Pg 295-305.

9. Choate CJ, (1990) **"Modern medicine and traditional Indian medicine for diabetes mellitus"** Part I and part II, 1st edition, Kothari publication, New Delhi, Pg 5-15.

10. Chowdhary DP,Duam(1998), **"Hypoglycaemic effect of a coded formula"**, 1st edition, Waltes private Limited, Pg 107-111.

11. Gori M, Campbell R (1998), **"Natural products and diabetes treatment"**, 3rd edition, Mosby publications, Pg 201-208.

12. Bhardwaj. PK, Pashar. BS, et.al., (1994), **" Control of hyperglycaemia by plant product"** , 3rd edition, Association of physicians India, Pg 33-35.

13. Suryanarayan, et.al., **"Antidiabetic and cardio protective effects of Amla and its phytochemical activity"** 2013 elsevier publications, Pg 583-600.

14. Paolisso G,Sgambato et.al., (1992), "Guidelines for using herbal supplements", 2nd edition, diabetic spectrum publications, Pg 160-169.

15. Shaprio K, Gong WC (2002), **" Natural products used for diabetes"**, 2nd edition, TTK publications, Pg 217-226

16. M.Krishnaveni, , **"Therapeutic potential of phyllanthus emblica,the ayurvedic wonder"**, Basic clinical physiology and pharmacology, 2010, Pg No 93-105.

JOURNALS:

1. M.S. Akhtat. Et.al., **"Effect of Amla fruit on blood glucose",** International journal of food science and nutrition, August 2011, Pg No -226.

2. Samad Abdus, “Status of Herbal medicines in the treatment of diabetes”, current diabetic reviews, bentham science publishers, may 2009, volume 5, Pg No 102-111.
3. Virendra yadev,et.al., “ **Amla medicinal food and pharmacological Activity”** International journal of pharmaceutical and chemical sciences, july 2014, volume 3, Pg No 616-618.
4. Ekta singh, **“The hypoglycaemic activity of Indian gooseberry”**, Journal of applied pharmaceutical science, December 2011, volume-2, Pg No 176-183.
5. Raaz et.al., **“Complementary and alternative medicine for type II diabetes”** Journal of diabetes and endocrinology, October 2012, volume-2, Pg No 44-56.
6. Khan. Et.al., **“A Review, Phytomedicines used in treatment of diabetes”** International journal of pharmacognosy, may 2014, volume 1, Pg No 343-365.
7. Maryam Bincy Thomas, **“ Perspectives of amla-A Wonder Herb”**, Journal of drug discovery and therapeutics, September 2013, volume 1, Pg No 59-64.
8. Walia. K.et.al., **“Role of Amla in type II diabetes”**, Research journal of recent sciences, November 2014, volume 4, Pg No 31-35.
9. K.V.Santhi Sri.et.al., “**Effect of Amla, an approach towards the control of Diabetes mellitus”**,Iintrernational National journal of current microbiology and applied sciences, Number 9,2013, volume 2, Pg NO 103-108.
10. Sabu M.C. and Kuttan R., **“Anti-diabetic activity of medicinal plants and its relationship with their antioxidant property”**, Journal of ethanopharmacology 2002 ,volume 2**,** Pg No 155-160.

11. Rishi Ram Parajuli, et al., **"Medicinal plants with potential hypoglycaemic activity-A Review"**, Journal of Biomedical and Pharmaceutical Research February 2015 volume 4, Pg No 116-120.
12. Reetesh malvi.et.al., **"A Review on antidiabetic medicinal plants and marketed Herbal Formulations"**, International journal of pharmaceutical and biological archives, October 2011, volume 2, Pg No 1344-1355.
13. Priya Abraham, " **A review of comprehensive study on medicinal plants of polyherbal formulation- churna",** Asian journal of pharmaceutical and clinical research, July 2013, volume 6, Pg No 11-18.

WEBSITES:

1. www.google.com

2. www.pubmed.com

3. www.academic.edu.com

4. www.japsonline.com

5. www.idosi.org

6. www.pharmaresearchlibrary.com

7. www.iscg.in

8. www.medicinalplants.com

ANNEXURE

ANBU COLLEGE OF NURSING

Annexure-2

Letter seeking expert's opinion and suggestion for the content

Validity of the tool used for the study.

Form,

Reg No: 301312904,

II nd Year M.Sc Nursing, Anbu College of nursing,

M G R Nagar, Komarapalayam.

To

_____

_____

Forwarded through

Mrs.Latha,

Principal,Anbu College of nursing,

M G R Nagar, Komarapalayam.

Sub: Expert opinion for content validation of research tool.

Respected Sir/Madam,

I **Reg No: 301312904** a post graduate student of Anbu College of nursing, anticipate Your valuable self; if you would accept to validate my research tool on the topic "**A Study To Assess The Effectiveness Of Amla Juice In Reducing Blood Sugar Among Patients With Type Ii Diabetes In A Selected Area At Namakkal District"**

It would be highly appreciable if you would kindly affirm your acceptance to endorse your Valuable suggestions on this topic. I had attached the details of the study along with the research tool.sss

Thanking you

Date: **Yours faithfully.**

Place: Komarapalayam **Reg No: 301312904**

Appendix-3

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool **of Reg No: 301312904** II nd Year M.Sc Nursing student who is undertaking, **A Study To Assess The Effectiveness Of Amla Juice In Reducing Blood Sugar Among Patients With Type Ii Diabetes In A Selected Area At Namakkal District"**

Place: Signature and seal of the Expert.

Date: Name and Designation.

LIST OF EXPERTS

1. Dr.J. Mala Mahalakshmi ,M.D.,PG Dip (Diab)

   T.G.N, Hospital,

   West car street

   Tiruchengode.

2. Dr.P. Sumathi, B.S.M.S., M.D

   Ravi hospital,

   West muniyappan kovil street,

   Tiruchengode.

3. Mrs.S.Lakshmi Prabha

   Professor & HOD

   Dept. of Medical Surgical Nursing

   VMACON

   Salem.

4. Mrs.P.Shanmugavadivu M.Sc(N).,

   Asst. Professor

   Vellalar college of Nursing

   Erode.

5. Mrs.S.Juliet Nirmala Mary M.Sc (N).,

   Asst. Professor

   Anbu College of Nursing.

6. Mrs .R.GowriM.Sc (N).,

   Asst. Professor,

   Anbu College of Nursing.

I.DEMOGRAPHIC VARIABLE PROFORMA

INSTRUCTION:

The investigator will be collecting the following information from participants (diabetic patients) interviewing them. Please be frank and free in answer. It will be kept confidential and will be used for research purpose alone.

1. Age(in years)

a. 30-40 [ ]

b. 41-50 [ ]

c. 51-60 [ ]

d .>60 [ ]

2. Gender

a. Male [ ]

b. Female [ ]

3. Marital status

a. Married [ ]

b. Unmarried [ ]

c. Divorced [ ]

d. Widow/Widower [ ]

4. Religion

a. Hindu [ ]

b. Christian [ ]

c. Muslim [ ]

d. Others [ ]

5. Education

a. Uneducated [ ]

b. Primary education [ ]

c. High school education [ ]

d. Higher secondary education [ ]

e. Graduate and above [ ]

6. Income per month

a.<5000 [ ]

b. 5001-10,000 [ ]

c. 10,001-15,000 [ ]

d. >15,000 [ ]

7. Occupation

a. Business [ ]

b. Government employee [ ]

c. Private sector [ ]

d.Others [ ]

8. Dietary habits

a.Vegetarian [ ]

b.Non-vegetarian [ ]

9. On regular exercise

a. Yes [ ]

b. No [ ]

II. CLINICAL VARIABLE PROFOMA

INSTRUCTION:

The investigator will be collecting following information from participants (Diabetic patients) interviewing them. Please be frank and free in answer. It will be used for research purpose alone.

1.Duration of illness

a. < 1 year [ ]

b.1-2 years [ ]

c.> 2 years [ ]

2.Weight in kgs

a.31- 40 [ ]

b.41- 50 [ ]

c.51-60 [ ]

d.> 60 [ ]

3.Basal metabolic index

a. < 18.4 [ ]

b. 18.5-22.5 [ ]

c. 22.6-29.9 [ ]

d. > 30 [ ]

4. Family history of Diabetes

a. yes [ ]

b. No [ ]

if yes, specify the relationship…

1.father [ ]

2.mother [ ]

3.uncle [ ]

4.other relations [ ]

5. Management for illness (Diabetes)

a.Diet & exercise [ ]

b. Insulin [ ]

c.Oral hypoglycemic agents [ ]

d.All the above [ ]

III. BLOOD GLUCOSE ASSESSMENT CHART:

PURPOSE:

This assessment chart is used to record the post prandial blood glucose before and after administration of amla juice.

INTRODUCTION:

The researcher will document the blood glucose levels after checking with the glucometer.

variable	**Before administration baseline data**		**After administration of amla juice**	
	Date	**Clients value**	**Date**	**15thday [clients value]**
Post prandial blood glucose [Mg/dl]				

SCORING:

<140mg/dl[normal] .

140-210 mg/dl [mild].

211-280 mg/dl [moderate].

281-350 mg/dl [severe].

>350 mg/dl [very severe].

IV. RATING SCALE ON PATIENTS SATISFACTION ABOUT AMLA JUICE ADMINISTRATION:

PURPOSE:

This rating scale is used to assess the level of satisfaction among diabetic patients regarding amla juice administration and this is assessed by the researcher after the therapy.

INSTRUCTION:

There are 5 items given below.kindly read the items.responses extent from highly satisfied to not-satisfied. Describe your satisfaction amla juice administration.Give your responses freely and frankly ,the responses will be kept confidential.

S.No	**Items**	**Highly satisfied**	**Moderately satisfied**	**Satisfied**	**Not satisfied**
		4	**3**	**2**	**1**
1	Frequency of administration				
2	Duration of administration				
3	Taste of amla juice				
4	Amout of amla juice				
5	Cost				

SCORING:< 25% - Not satisfied.

25-50% - Satisfied.

51-75% - Moderately satisfie

>75% - Highly satisfied.

gFjp - I

r%fk; rhh;e;j Ra tptuf; Fwpg;G

Fwpg;G:

Ma;thsh; gq;Nfw;ghsh;fsplkpUe;J (ePhpopT Nehahspfs;)
fPo;fhZk; jfty;fis Ngl;b fhz;gjd; %yk; Nrfhpf;fwhh;.
jaT$h;e;J gakpy;yhkYk; ,ay;ghfTk; tpilaspf;fTk;. ,J
ufrpakhd Kiwapy; fhf;fgLk; kw;Wk; ,J Ma;Tf;F kl;LNk
cgNahfg;gLj;jg;gLk;.

1. taJ (tUlq;fspy;)
   i. 30 - 40 [ ]
   ii. 41 - 50 [ ]
   iii. 51 - 60 [ ]
   iv. 60 f;F Nky; [ ]
2. ghypdk;
   i. Mz; [ ]
   ii. ngz; [ ]
3. jpUkzepiy
   i. jpUkzkhdth; [ ]
   ii. jpUkzkhfhjth; [ ]
   iii. tpthfuj;jhdth; [ ]
   iv. tpjit [ ]
4. kjk;
   i. ,e;J [ ]
   ii. fpwp];Jtk; [ ]
   iii. kw;wit [ ]
5. fy;tpj; jFjp
   i. gbg;gwptpy;yhjth; [ ]
   ii. Muk;gepiyf; fy;tp [ ]
   iii. cah;epiyf; fy;tp [ ]
   iv. Nky; epiyf; fy;tp [ ]
   v. gl;lk; kw;Wk; mjw;F Nky; [ ]

6. khj tUkhdk; (&ghapy;)

i. 5000 f;F fPo; [ ]

ii. 5001 - 10000 [ ]

iii. 10001 - 15000 [ ]

iv. 15001 f;F Nky; [ ]

7. njhopy;

i. Ranjhopy; [ ]

ii. muR Copah; [ ]

iii. jdpahh; epWtdk; [ ]

iv. kw;wit [ ]

8. czT gof;fk;

i. irtk; [ ]

ii. mirtk; [ ]

9. jpdrhp clw;gapw;rp Nkw;nfhs;tPh;fsh ?

i. Mk; [ ]

ii. ,y;iy [ ]

gFjp - 2

Neha; njhlh;ghd tptuk;

tprhuiz elj;Jgth; gq;Nfw;ghsh;fsplkpUe;J (ePhpopT Nehahspfs;) fPo;f;fhZk; jfty;fiy Ngl;b fhz;gjd; %yk; Nrfhpf;fpwhh;. jaT$h;e;J gakpy;yhkYk; ,ay;ghfTk; tpilaspf;fTk;. ,J ufrpakhd Kiwapy; fhf;fgLk; kw;Wk; ,J Muha;r;rpf;F kl;LNk cgNahfg;gLj;jg;gLk;.

1. cly; eyf; NfL vj;jid ehl;fshf cs;sJ ?
   i. xU tUlj;jpw;F Fiwthf [ ]
   ii. 1 - 2 tUlk; [ ]
   iii. ,uz;L tUlj;jpw;F Nkyhf [ ]
2. cly; vil (fpNyh fpuhk;)
   i. 31 - 40 [ ]
   ii. 41 - 50 [ ]
   iii. 51 - 60 [ ]
   iv. 60 f;F Nky; [ ]
3. mbg;gil caph;g;nghUs; khWghl;L ml;ltiz
   i. < 18.4 [ ]
   ii. 18.5 - 22.5 [ ]
   iii. 22.6 - 29.9 [ ]
   iv. 30 [ ]
4. cq;fs; FLk;g egh;fspy; ahUf;NfapDk; ePhpopTNeha; cz;lh ?
   i. Mk; [ ]
   ii. ,y;iy [ ]
      i. Mk; vdpy;. cwTKiw
         1. mg;gh [ ]
         2. mk;kh [ ]
         3. khkh [ ]
         4. kw;w cwTKiw [ ]

5. ePhpopTNeha;f;F cgNahfg;gLj;Jk; kUj;Jfs;

i. czTf; fl;Lg;ghL kw;Wk; clw;gapw;rp [ ]

ii. ,d;Rypd; [ ]

iii. Xuy; i`g;NghfpisrPkpf; Vn[z;l;]; (OHA'S) [ ]

iv. kw;Wk; [ ]

gFjp - 4

ney;ypr;rhW rpfpr;ir gw;wpa gq;Nfw;ghshpd; kd epiwT mwpjy;

Fwpf;Nfhs;:

ney;ypr;rhW rpfpr;ir gw;wpa gq;Nfw;ghshpd; kd epiwT mwpjy;

Fwpg;G:

Ie;J tifahd tpdhf;fSk; mjw;Fhpa gjpyhf epiwe;j kdepiwT Kjy; kdepiwT mw;w epiy tiu nfhLf;fg;gl;Ls;sJ mij ftdkhf gbj;J tpilaspf;fTk;. nfhLf;fg;gl;l ml;ltizia ftdkhf gbj;J ,ay;ghfTk; gakpy;yhkYk; tpilaspf;fTk;. ,J ufrpakhd Kiwapy; fhf;fg;gLk; kw;Wk; ,J Ma;Tf;F kl;LNk cgNahfg;gLj;jg;gLk;.

t. vz;	nghUs;	Mjpfkhd kd epiwT	kpjkhd kd epiwT	kd epiwT	kdepiwT mw;w epiy
		4	3	2	1
1.	Mbf;fb vLj;Jf; nfhs;Sjy;				
2.	vLj;Jf;nfhs;Sk; fhyk;				
3.	ney;ypr;rhW Rit				
4.	ney;ypr;rhW msT				
5.	tpiy				

kjpg;ngz;:

25 f;F fPo; - kd epiwT mw;w epiy

25 - 50 - kd epiwT

51 - 75 - kpjkhd kd epiwT

76 f;F Nky; - mjpfkhd kd epiwT